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MUSTARD HYPERSENSITIVITY AND ACHLORHYDRIA.¹

By E. R. TRETHEWIE,

From the Department of Physiology, University of Melbourne.

NUMEROUS publications have appeared which indicate the increased frequency of achlorhydria in allergic states. Hypochlorhydria and achlorhydria were found in eight out of ten cases of light sensitization by Barber, Howitt and Knott (1926). Duke (1927) found complete achlorhydria in 12 out of 24 cases of allergy, and in a further six the free acidity was less than 5°. Of a series of 200 asthmatics, Bray found complete achlorhydria in 9%, pronounced hypochlorhydria in 48% and mild hypochlorhydria in 23%. These subjects were aged six months to twelve years. In four out of five the acid gastric secretion was below normal compared with 50 controls.

The following cases are reported since very mild prior exposure to mustard induced the hypersensitive state in subjects shown to have complete achlorhydria. The greater than normal frequency of achlorhydria in allergic states suggests that such people may be sensitized by less exposure than that required to sensitize normal people.

Method.

Tests for sensitization were carried out by means of a pipette which delivered 0.01 millilitre in each drop, and the drop was allowed to spread. Test meal examinations (gruel) were carried out by Miss Beryl Splatt.

History and Findings.

Twelve soldiers were used over a period of fourteen days for instructional purposes for tests of the values of

ointments and of the degree of vesicant potency of mustard and Lewisite. Two of these (M.M.E. and A.J.T.) developed sensitivity to mustard.

Sensitive Patients.

CASE I.—M.M.E., a male patient, aged nineteen years, six months previously at 7 p.m. had handled mustard mines. At 7.30 a.m. the next day he noticed irritation of the left side and left arm. The following day small blisters developed and the area healed in two weeks. On examination of the patient on June 21, 1943, a pale, irregular area was observed extending on the body and chest of the left side laterally; it measured 14.0 centimetres by 2.0 centimetres. A similar area measuring 6.0 centimetres by 1.5 centimetres was present on the adjacent portion of the arm. Fourteen days previously two-millimetre drops of mustard and Lewisite had been applied to the arms and decontaminated with Number 2 and Number 5 ointments. No abnormal response was noted. Ten days later (June 17) two-millimetre drops of mustard and Lewisite were again applied to the arm and decontaminated with ointment. Weals developed, and four days later extended over areas measuring respectively 11.0 by 8.0 centimetres with a blister measuring 2.4 by 1.4 centimetres, and 7.5 by 5.0 centimetres with central pin-head vesicles measuring 2.4 by 1.4 centimetres.

Two days later the areas of weal formation measured respectively 9.0 by 12.0 centimetres and 9.0 by 2.5 centimetres. On the following day one area of erythema and oedema measured 12.5 by 6.0 centimetres (the vesicle area being slightly moist), and the other measured 7.5 by 5.0 centimetres. Examination after a test meal on June 22 showed that the fasting contents contained no free hydrochloric acid and that the combined acidity was 5°. Three days later a fractional test meal examination revealed no free hydrochloric acid and a very low combined acidity throughout (Figure 1).

CASE II.—A.J.T., a male patient, aged twenty-five years, did not remember any previous exposure to mustard. Drops of mustard and Lewisite were applied to the skin and decontaminated with ointments Number 2 and Number 5 on June 7, 1943. On the following days no abnormal response was noted. Ten days later drops of mustard and Lewisite were again applied to the skin of the arm in the vicinity of the other applications and decontaminated with the ointments. A flare developed at the site of the mustard

¹Released by the Chemical Defence Board, Australia, on February 24, 1947; submitted on September 28, 1943.

contamination of the left arm. Five days later the oedema and flare covered an area measuring 12.5 by 6.0 centimetres. On the right arm at the mustard-contaminated spot the erythema and oedema began to spread on June 22, and on the following day it measured 6.0 by 8.0 centimetres. On June 24 the areas of erythema and oedema measured 11.0 by 6.0 centimetres and 7.5 by 4.0 centimetres with out-runners. A test meal examination on June 22 revealed an absence of free hydrochloric acid throughout the meal and a very low combined acidity (Figure II).

22/6/43. Fasting content No free HCl Combined acidity 5°. Mucus +

FRACTIONAL TEST MEAL

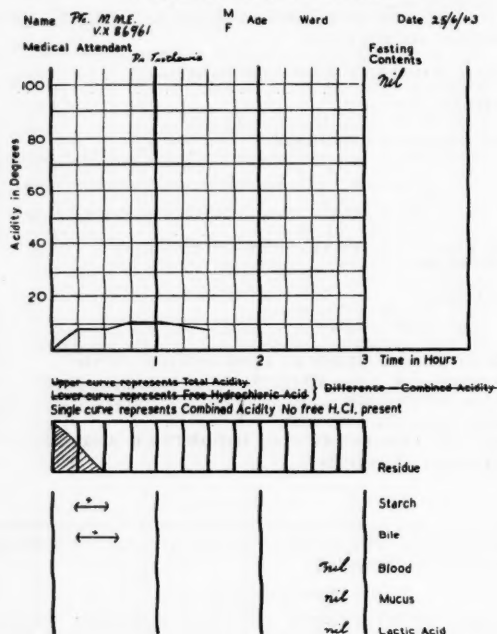


FIGURE I.

Sensitivity Tests.

Sensitivity tests were carried out on both subjects. An application of 0.01 millilitre of a 1 in 100,000 solution of mustard in benzene was made to the volar surface of the lower part of the forearm and 0.01 millilitre of benzene was

applied to the middle part of the forearm. On the upper part of the forearm 0.01 millilitre of a 1 in 20,000 solution of mustard in benzene was applied in the case of A.J.T. and 0.01 millilitre of a 1 in 2,000 solution of mustard in benzene in the case of M.M.E. It is seen (Table I) that vesication was produced with a 1 in 2,000 solution in the case of M.M.E. and oedema and erythema with a 1 in 20,000 solution in the case of A.J.T. With a 1 in 100,000 solution of mustard faint erythema was produced in the case of the former and erythema in the case of the latter. There was no response to benzene in either case.

Controls.

Of the remaining ten soldiers none showed abnormal sensitivity. In the case of two of these (V.D.B., aged twenty-four years, and A.E.L., aged twenty-three years) vesication followed the first application of two-millilitre drops of mustard decontaminated with ointments and they were tested as controls. One of them later developed a surrounding follicular skin infection after the second application. There was no spreading weal or flare with out-runners in either case. Fractional test meal examinations in each case revealed a normal amount of free hydrochloric acid (Figures III and IV).

Skin Sensitivity following Prolonged Exposure.

T.R.G., aged twenty-one years, was engaged in the preparation of mustard from November, 1942. For five months he worked one hour per week with mustard, and three days per week for the following three weeks. The work was carried out in a fume cupboard, the mustard being at a temperature of 60° to 70° C., and the hands were unprotected. Mustard vapour was removed by a fan. The subject's skin became hypersensitive by the end of the third week when engaged on the work three days per week. The whole of the hands became red, and weals developed on the dorsum. Two months later a sensitivity test was carried out by A. H. Ennor; erythema developed after the application of a drop of a 1 in 100,000 solution of mustard. On the patient's returning to work with mustard six weeks later, a similar affection of the hands developed six or seven hours after he had simply poured mustard out of a bottle into a dish. A fractional test meal examination showed that the free hydrochloric acid was rising to 48°. Later this subject lost his sensitivity.

Probable Case of Eye Sensitivity.

E.R.T., aged thirty years, while experimenting with mustard in November, 1942, developed redness of the conjunctiva of the palpebral aperture and some redness and swelling of the lid conjunctiva. This was considered by a chemical warfare physiologist to be a mild mustard burn. Work with mustard was continued and the condition fluctuated, sometimes improving, sometimes growing worse, a feeling of grittiness in the eyes and lachrymation being noted. "Albucid" (2.5% solution) was used, but it caused the eyes to sting and was found to have a pH of 8.4 (electrical estimation). In January, 1943, work with mustard

TABLE I.

		Days after Application of Mustard.							
		1/100,000 Solution.			1/20,000 Solution.			1/2,000 Solution.	
		1	2	3	1	2	3	1	2
Wet bulb reading	..	42.9° F.	41.8° F.	—	—	—	—	42.9° F.	41.8° F.
Dry bulb reading	...	46.8° F.	45.9° F.	—	—	—	—	46.8° F.	45.9° F.
M.M.E.—									
Right .. ..	..	E—	E—	—	—	—	—	V	V
	..	0.6 sq. cm.	1.12 sq. cm.	—	—	—	—	—	0.23 sq. cm.
Left .. ..	..	E—	E—	—	—	—	—	E+	E+
	..	3.15 sq. cm.	2.4 sq. cm.	—	—	—	—	20.5 sq. cm.	6.72 sq. cm.
								E+	E+
								21.0 sq. cm.	6.9 sq. cm.
Wet bulb reading	..	47.0° F.	—	—	—	—	—	—	—
Dry bulb reading	..	55.2° F.	—	—	—	—	—	—	—
A.J.T.—									
Right .. ..	..	E—	E	E	E+	E+	E+	—	—
	..	1.6 sq. cm.	1.2 sq. cm.	1.2 sq. cm.	8.75 sq. cm.	10.5 sq. cm.	8.25 sq. cm.	—	—
Left .. ..	..	E—	E	E	E+	E+	E+	—	—
	..	5.6 sq. cm.	1.05 sq. cm.	0.45 sq. cm.	11.25 sq. cm.	11.5 sq. cm.	8.8 sq. cm.	—	—

"V" = vesicle; "E+" = oedema with erythema; "E" = erythema; "E—" = slight erythema.

the upper solution of A.J.T. and in benzene vesication the case of 0,000 solution case of the There was

abnormal D.B., aged (see years) two-milliointments them later a after the al or flare test meal amount of

posure. The prepara-months he three days work was being at a unprotected. object's skin week when the whole of the dorsum ed out by plication of . On the eeks later, even hours bottle into howed that Later this

ating with of the conedness and dered by a stard burn. condition iving worst, ation being t it caused pH of 84 th mustard

ution.

2

41.8° F.
45.0° F.

Y

0.23 sq. cm.

0.72 sq. cm.

6.9 sq. cm.

—

—

—

—

was continued in a tropical zone, and after three days the condition of the eyes was much worse. An ophthalmologist diagnosed chemical keratitis. Thereafter mustard was avoided as far as possible. The eyes remained in an irritable state for some months and a mild infection supervened. When the subject was near minute amounts of mustard which did not affect other people who were equally close, redness and soreness of the conjunctiva increased after a delay. The repetition of this finding indicated the likelihood that hypersensitivity was present. This subject was also found to have complete achlorhydria by test meal analysis.

A skin test gives no information as to whether the eyes are hypersensitive or not. None the less, a 0.01-millilitre drop of 1 in 100,000 mustard solution was applied to the skin; this had no effect. There was no history of a previous skin burn or skin hypersensitivity.

It is worthy of note that after exposure to a 1 in 200,000 concentration of chloracetophenone with exercise this subject had a sanguineous discharge from the nose, and irritation and weal formation occurred on the exposed skin. One weal was approximately four centimetres in diameter and

tivity after mild exposure to mustard; none of the remainder developed such sensitivity. The chance of selecting these two in the group of 12 is only 1 in 66. Therefore there is a significant bias in favour of developing sensitivity to mustard in achlorhydrics under the conditions obtaining. If any of the remaining ten subjects had been previously exposed to mustard without their knowledge, that fact would increase the significance rather than diminish it, since it would give them a greater chance of being sensitized. Thus there is some correlation between the development of hypersensitivity to mustard and achlorhydria under the conditions of experiment.

Now if previous exposure is an essential preliminary to the development of the sensitive state, and it is almost certainly so in hypersensitivity to mustard—it would be expected that there would be a variation in the degree of prior exposure necessary to produce sensitivity. For any one factor more people would be expected to be exposed at least once than for any greater number of exposures.

FRACTIONAL TEST MEAL

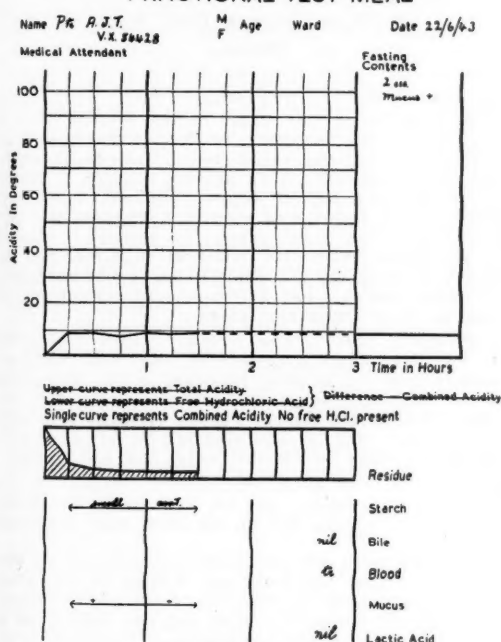


FIGURE II.

took several days to disappear, its colour in the meantime becoming bluish. Eighteen months later this subject had a recurrence of the keratitis, with an increased eye irritability and a sensitivity-dermatitis after bandaging the eyes. These conditions have not yet subsided.

Discussion.

It would appear to be well established that in allergic states achlorhydria and hypochlorhydria are more frequent than can be accounted for by the normal incidence in the population. This statement holds more weight if young males only are considered, since the incidence of achlorhydria in them is only 4% (Bennett and Ryle, 1921).

Two subjects in a series of 12 young males who developed sensitivity to mustard after one or two previous exposures to it were found to have complete achlorhydria. The probability that three or any greater number of cases of achlorhydria would occur in that group is 0.011, which is most unlikely. Further, two subjects taken at random from the remaining ten had normal acid secretion. It can therefore be assumed with a high degree of probability that there were only two cases of achlorhydria in the whole group. These subjects were shown to develop sensi-

FRACTIONAL TEST MEAL

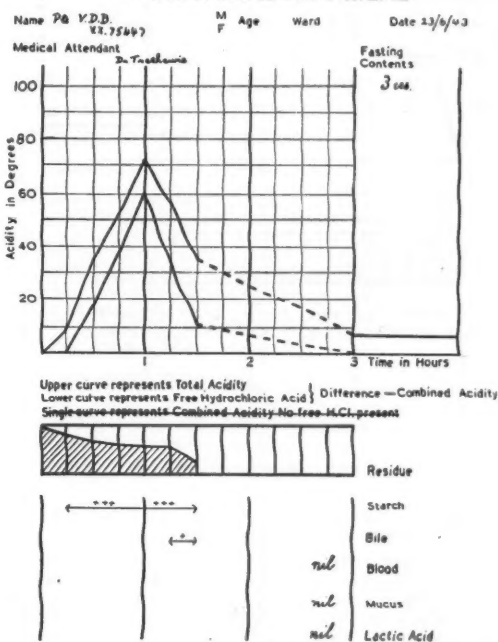


FIGURE III.

Similarly, more would be exposed at least twice than for any greater number of exposures, since the former group includes the latter group. The curve will then decline from a maximum for low values of the abscissa (C, Figure V) to near zero for high values of the abscissa.

Curve A in Figure V is the suggested distribution of sensitive subjects (ordinate) and number of exposures (abscissa) for achlorhydrics. Curve B is the suggested distribution of sensitive subjects (ordinate) and number of exposures (abscissa) for non-achlorhydrics. Thus the supposition is that the achlorhydrics develop sensitivity after less exposure (in number and possibly in amount) than the average, and the two normal curves of distribution will follow as described. Curve C would indicate the number developing sensitivity (all subjects below the line). Thus, while area A is only one-twenty-fifth of area B, the relative incidence of sensitivity under average conditions is much increased with A. The only chance for the distribution to remain unchanged would be if curve C remained above B, and this might arise in special circumstances.

The findings in the cases recorded are not without agreement with the above discussion. Of the subjects

whose skin was affected, two developed sensitivity after one or two previous exposures only, and these had complete achlorhydria. The third developed sensitivity only after repeated exposure and he had normal gastric acidity. Later, this subject lost his sensitivity. It is true that one of the sensitive subjects had been exposed to mustard once previously; but an interval of six months had elapsed since then. For this reason the statement "bias in favour of developing sensitivity to mustard" was used.

FRACTIONAL TEST MEAL

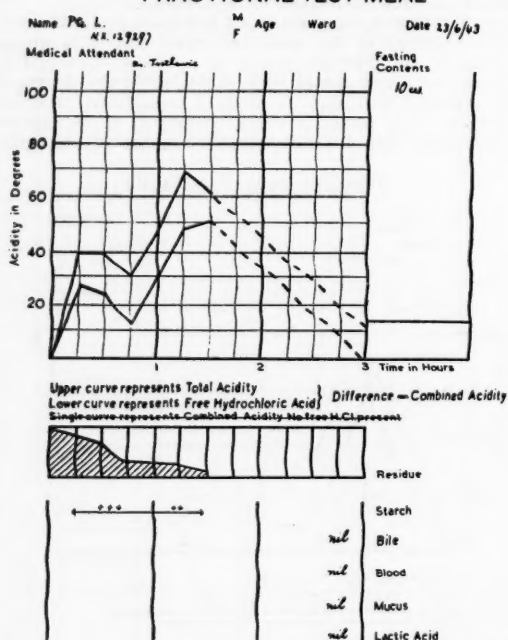


FIGURE IV.

It may be wise, when selecting a person for special work with mustard, to exclude achlorhydric.

It is possible that the timing of the repeated doses of mustard is important in the development of sensitivity. These details are not available for all subjects, since many had returned to their units before the full significance of the test meal examination results was appreciated.

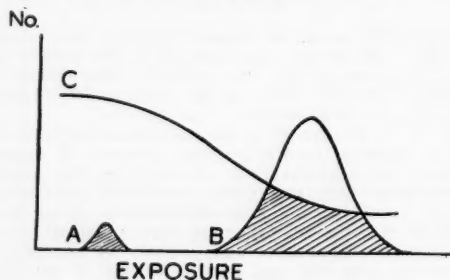


FIGURE V.

Conclusions.

It has been shown that sensitivity to mustard developed in four cases after exposure to mustard. In two cases sensitivity affected the skin and followed only slight previous exposure. These subjects have complete achlorhydria. One subject developed eye sensitivity after previous exposure, and this subject also was achlorhydric.

The fourth patient developed sensitivity of the skin after gross and repeated exposure and later lost this sensitivity. This subject was not achlorhydric. The significance of achlorhydria under the conditions obtaining was shown to be high for the development of sensitivity in such subjects after exposure to mustard.

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IODINE TREATMENT OF MONILIAL INFECTION OF THE VAGINA.¹

By CLAIRE WEEKES, D.Sc., M.B.,
Sydney.

For some years, until February, 1946, treatment of monilial infection of the vagina in the Monilia clinic at the Rachel Forster Hospital, Redfern, Sydney, had not been considered entirely satisfactory. Various antiseptics had been used, including a 2% aqueous solution of gentian violet, a 4% solution of copper sulphate, and hexylresorcinol (1 in 1,000), and with each of these the story had been much the same—temporary absence of Monilia from swabbings, temporary relief of pruritus, and the patient back again in the clinic a few weeks or months later. Some patients had had treatment periodically for as long as three consecutive years.

In February, 1946, a new treatment with *Liquor Iodi Mitis* (British Pharmacopoeia), to our knowledge not previously used for monilial infection of the vagina, was tried; it is now being used almost exclusively in the Monilia clinic at the Rachel Forster Hospital with satisfactory results. The formula used is 2.5% of iodine, 1.5% of potassium iodide in distilled water and 90% alcohol.

Hesseltine in 1937 advocated iodine compounds for this infection in the vagina; but we have unfortunately not had access to his paper and do not know what compounds he uses.

Between February and September, 1946, 50 patients were treated with *Liquor Iodi Mitis*, and of these, 38 were cured. A patient was considered cured only if she had no pruritus and if attempts at culture gave negative results for at least one month after the last treatment. Actually, of the 38 patients cured, only three had a relapse, and these after further treatment have remained cured during the last three months.

Of the 12 patients not counted as cured, two had had no test made before beginning the iodine treatment, so the claim could not be made that they had been cured by iodine, although they lost their discharge and pruritus with the treatment; one patient was three months pregnant; another patient was six months pregnant and reacted unfavourably to iodine, so treatment was immediately suspended; the condition of one patient was complicated by diabetes mellitus; two patients had chronic salpingitis; and one patient's condition was complicated by vulval warts which were too tender for treatment with iodine. Only four of the patients who failed to respond to iodine were suffering from straightforward monilial infection of the vagina without complications. Of the 38 patients cured, 29 were suffering simply from monilial vaginitis.

The success of the iodine treatment was best shown by the attendance at the clinic, where the cures were so

¹Read at a meeting of the Medical Women's Society of New South Wales on September 25, 1946, at the Rachel Forster Hospital, Redfern, Sydney.

comparatively quick that the number of patients attending each session fell from an average of 25 to an average of 15.

Not all patients were suitable for iodine treatment. Only those with severe pruritus or those willing to bear the pain of treatment were chosen.

Method of Treatment.

The patient was first bimanually examined *per vaginam*, the cervix and vagina were inspected, and a swabbing for cultural examination on an agar slope was taken from cervix and vagina. Any cervical erosion was first treated before the iodine paintings were begun. If the patient had never before used iodine on herself, she was first tested for iodine sensitivity by painting part of the vulva with iodine and reserving vaginal treatment for the following week.

Before each iodine treatment the vagina was well cleaned out with sodium bicarbonate solution or hydrogen peroxide solution (50%). Cotton-wool swabs were placed over the anus and between the buttocks and held in position during treatment, since it was found that the anus, especially if hemorrhoids were present, was particularly sensitive to iodine. No speculum was used during the course of treatment after the preliminary inspection, to minimize the risk of passing infection from patient to patient. The painting with iodine was carried out with a cotton-wool swab of moderate size held firmly in a swab stick. If the patient was within a few days of menstruation, either treatment was postponed until the end of the menstrual period or an initial painting with gentian violet was given, since it was found that painting with iodine at this time was too severe for most patients. During iodine treatment paintings were given twice a week at intervals of three or four days, and it was found necessary to stress the importance of regular attendance.

The number of paintings needed for cure varied, the average number being three or four. The exact number of paintings given was as follows: two patients were cured with one painting, three patients were cured with two paintings, thirteen patients were cured with three paintings, eleven patients were cured with four paintings, three patients were cured with five paintings, four patients were cured with six paintings, one patient was cured with seven paintings, one patient was cured with eight paintings and ten patients were given more than nine paintings without success and were then considered incurable as far as iodine treatment was concerned.

Naturally, longer duration of cure can be claimed for those patients treated at the beginning of the year than for those treated more recently. The following statement tells the story from the beginning of February until the end of September, 1946: one patient has remained cured for eight months, three patients have remained cured for seven months, four patients have remained cured for six months, nine patients have remained cured for five months, sixteen patients have remained cured for four months, five patients have remained cured for three months.

Only three of the 38 patients considered cured had a relapse, and an average of four further paintings finally cured each of them. As many patients as possible were brought back to the clinic each month for cultural examination of vaginal material during the eight months of investigation, and all patients were so investigated at the end of August, 1946.

Reports of Cases.

It is only on consideration of some of the clinical histories that the benefits of iodine treatment can be fully appreciated.

CASE I.—The patient was treated at intervals with tampons of 4% copper sulphate solution from March 14, 1944, until February 23, 1945; occasional attempts at culture were unsuccessful; but she always came back after a few weeks with pruritus and Monilia would once more be found. She was then treated with gentian violet at varying intervals until February 12, 1946, when she again presented herself with pruritus, and a culture of Monilia was once more

obtained. She was given two paintings with iodine, no culture was obtainable on March 5, and she was free from all signs and symptoms until May 29, when a culture was again obtained. Six paintings with iodine were then given, and the patient has remained free from symptoms during the last three months.

CASE II.—The patient had had treatment with hexyl-resorcinol and gentian violet intermittently over a period of nine months, and still had recurrent signs and symptoms. After four paintings with iodine no cultures were obtainable and the patient was free from pruritus; she has remained free from symptoms during the last seven months, by far the longest period in her record.

CASE III.—The patient was treated unsuccessfully with gentian violet for six months. Then after three paintings with iodine no culture was obtainable and she was free from pruritus. She has remained free from symptoms during the last eight months and all attempts at culture were without result.

CASE IV.—The patient was treated with gentian violet and copper sulphate between December 12, 1945, and April 9, 1946. Four paintings with iodine cured the patient, who has remained free from signs and symptoms (five months).

CASE V.—The patient was treated with gentian violet, Bonney's blue and acetarsol tablets between November 12, 1945, and April 9, 1946. Two paintings with iodine cured her, and she has remained free from signs and symptoms (five months).

CASE VI.—The patient was treated with gentian violet over a period of six months. One painting with iodine cured her, and she has remained free from signs and symptoms (four months).

Discussion.

Advantages.

The treatment is quick, relief from pruritus usually coming after the first or second painting, and cure after the third or fourth. No self-treatment is necessary. The quick result is especially appreciated in clinics where the numbers are thus kept within manageable limits.

Iodine sometimes heals when all else has failed and when the patient has become desperate. This has been my experience in private practice.

Disadvantages.

The treatment with iodine is painful. The first painting is usually the worst. However, we had no defaulters from the clinic, although it is necessary to stress that we chose our patients and did not attempt to treat with iodine a highly strung patient who was obviously not the pain-bearing type. In our experience patients with exasperating pruritus did not mind the pain from iodine treatment—the relief made up for all. At present weaker solutions of iodine are being tried at the Rachel Forster Hospital. They are less painful and may be as efficient.

Iodine sensitivity must be watched for. A true iodine reaction with increased salivation, gastro-intestinal upset or laryngeal edema was not met with in any of the 50 patients treated; but three patients complained of weakness and nausea after treatment. As has previously been stated, one of these patients was six months pregnant, and the treatment was immediately stopped. The treatment of the other two patients was continued, and they suffered no ill effects after the first painting.

Summary and Conclusions.

Liquor Iodi Mitis was used locally twice a week for treatment of monilial infection of the vagina in 50 cases at the Rachel Forster Hospital, Redfern, Sydney, during the months of February to September, 1946, inclusive. It was found to be the quickest and most successful treatment so far used in the Monilia clinic at that hospital and is now being used there almost exclusively.

Thirty-eight of the fifty patients treated were cured; that is, all pruritus was lost and no Monilia was obtained on attempted culture for at least one month after the final treatment. Actually, the patients claimed to have been cured have remained free from signs and symptoms for periods ranging from eight to three months.

The number of paintings necessary to effect a cure ranged from one to nine, the majority of patients requiring three or four paintings with an interval of three days between paintings.

Of the twelve patients not cured by iodine, the condition of six was complicated with *diabetes mellitus*, chronic salpingitis, vulval warts or pregnancy. Only four of the patients not responsive to iodine were suffering from simple monilial vaginitis.

Acknowledgements.

I wish to take this opportunity to thank Dr. Mary Puckey, Medical Superintendent of the Rachel Forster Hospital, for her generous cooperation; Dr. Ida Saunders, for her most acceptable advice and encouragement; Sister Bee, pathology department, Rachel Forster Hospital, for herself investigating all the culture material taken during the investigation; and the staff of the out-patient department, Rachel Forster Hospital, for their patience and forbearance.

PREFRONTAL LEUCOTOMY.¹

By J. H. HURT, M.B., B.S., D.P.M. (England),
Melbourne.

WHILST in England from 1936 to 1945 I had the opportunity of seeing a number of patients before and after the operation of prefrontal leucotomy. The operation was first performed by Lima in Portugal in 1936 and was first done in Great Britain at Bristol in December, 1940.

The rationale of the operation of prefrontal leucotomy is based chiefly on severing the fibres connecting the prefrontal cortex with the dorso-medial nucleus of the thalamus.

Briefly the technique of the operation is to take a point 3.0 centimetres behind the lateral margin of the orbit and 5.0 to 6.0 centimetres above the zygoma. Through an incision a burr hole is made in the line of the coronal suture. The leucotome is introduced to pass close in front of the anterior horn of the ventricle, sufficiently deep to pass close in front of the grey matter of the inner aspect of the frontal lobe. The leucotome is made to pivot about the point of entrance through the dura so that the inner extremity travels upwards towards the superior surface of the frontal lobe, pushing more deeply into the brain, so that the line of section runs parallel with the *fals cerebri*. Now the leucotome is withdrawn and reintroduced along the original line and is made to travel downwards parallel with the *fals cerebri*, to deal with the fibres running from the lower frontal pole. During this process the leucotome is progressively withdrawn to avoid damage to the grey matter of the orbital surface of the frontal pole.

Of the number of cases that I have seen, I have chosen twenty which I can best remember.

In these early days we were not sure what our results would be, nor were the surgeons too certain of the technique; thus an assortment of patients with chronic conditions was taken—patients typical of any large mental hospital population. These patients were also chosen because methods of treatment such as psychoanalysis and insulin, "Cardiazol" and electroconvulsive therapy had been tried but had failed to produce the desired results. Also, of course, it is usually less difficult to obtain the permission for operation from the relatives in such cases.

These twenty patients were divided into the following types, according to the conditions from which they suffered:

1. Schizophrenia, 8 { Simple, 4;
Paraphrenic, 2;
Catatonic, 2.
2. Involutional melancholia, 4.
3. Cyclothymia, 1.
4. Obsessional neurosis, 3.
5. Paranoia, 4.

Schizophrenia.

Of the four cases of the simple type of schizophrenia one was comparatively acute.

¹Read at a meeting of the Neurological and Psychiatric Section of the Victorian Branch of the British Medical Association on October 24, 1946.

The patient was a boy of about nineteen years of age who had been in hospital for about eighteen months. His previous personality had been fairly well integrated, but showed some autistic tendencies, and he was somewhat shy and reserved, although of good intelligence. On admission to hospital he was dull, apathetic, retarded, untidy and withdrawn. At times he showed evidence of bizarre hallucinations of auditory nature.

Following the operation he was very restless for several days and had one epileptiform seizure. After several months he was no longer retarded, nor reserved, and took an interest in himself and his surroundings. The hallucinations slowly faded, but he showed little insight.

The other three cases of the simple type of schizophrenia were chronic. The ages of the patients ranged from thirty to forty years and all of them had been in hospital for several years. All were dull, simple and retarded, untidy in habits, showing personality dilapidation and dulling of affect. All were hallucinated aurally and one had occasional visual hallucinations. They also expressed non-systematized delusions with little emotional colouring.

The previous history in each case was poor, showing much evidence of preschizoid psychopathic personality, being dull, slow, autistic, shy and quiet.

As a result of the operation one patient died owing to cerebral hemorrhage following damage to the anterior cerebral artery. The other two patients responded poorly, remaining dull, retarded and withdrawn, but with occasional periods of psychomotor activity.

Catatonia.

In the category of catatonia there were two patients, in both of whom the condition was chronic; they were aged about thirty years and had been in hospital for several years. They were dull, retarded, mute and resistive, but at times impulsive, restless and excited. When excited, they showed evidence of hallucinations and expressed bizarre delusions. One had had "Cardiazol" with a temporary good result and the other had had both "Cardiazol" and insulin with little change. Following operation the former patient responded well after an initial setback due to some aphasia and incontinence of urine; these, however, cleared up in a few weeks, leaving him cheerful, friendly, with little intellectual impairment and quite fair insight. The other man became restless, bombastic, often irritable and churlish.

Paraphrenia.

Under the heading of paraphrenia there are two cases. In both the condition again was chronic; the patients were aged between forty and forty-five years and had been in hospital for four to five years. In each case the basic personality was fairly well preserved, but the patients expressed many non-systematized delusional ideas. These ideas were predominantly persecutory and thus their moods were usually depressed. There was also evidence that in the past both had been hallucinated. Past history revealed them to have been shy, sensitive persons, rather suspicious and somewhat self-centred.

Insulin therapy had not been effective. As the result of leucotomy one patient improved, becoming cheerful, rather talkative and self-centred. She appeared to live for the present and was not concerned with the future. She still had vague delusional ideas, but her mood was no longer disturbed by them. The other patient still expressed delusions, but was facile and sometimes restless and excited, as though hallucinated.

Involutional Melancholia.

In the category of involutional melancholia are four patients aged between sixty and sixty-five years, and each had been ill for five to ten years. They were restless, agitated, very miserable, expressing ideas of unworthiness and sin. Picking at their flesh and hair was common, and they frequently asked to be exterminated. Unfortunately for our results, one was exterminated by the operation owing to cerebral hemorrhage.

Each of these patients had already had "Cardiazol" treatment and two had had electroconvulsive therapy also, but with minimal improvement. As I have stated, one

died following the operation, two made very good recoveries, being completely free of depression and extremely grateful for their happiness.

The fourth patient deteriorated into what might be called a happy dotage. He also developed tremor of the hands and some chronic confusion. There was probably some organic change in the brain which had been missed on selection of the patient.

Cyclothymia.

We had one patient with the diagnosis of cyclothymia, a man of forty-five years of age who had had frequent attacks of mania and depression and in whom, over the previous three years, the depressive attacks had become very frequent and prolonged, requiring continuous hospital care.

He was amusing in his manic phases in that in the early stages he would dispose of the stock of his jeweller's shop at ridiculously low prices, then buy himself a new motor-car. In this he would drive at high speed, usually finishing his adventure with an accident.

The operation resulted in a marked improvement. He became very mildly hypomanic, cheerful, active, but concerned only with the present. His emotional affect was very superficial and he showed little depth of feeling about anything, except when thwarted; then on several occasions he became very angry, but his anger rapidly subsided. He eventually returned to his trade.

Obsessional Neurosis.

In the section of obsessional neurosis are three cases; one patient was about twenty-eight and two were around forty-five years of age, and each had been ill for about five to ten years. Their distress was very considerable and years of psychotherapy and analysis had been unsuccessful. Their condition was of the obsessive-compulsive type, and in each case the operation was quite successful.

The first case was that of a young Irish lightweight boxer who had been one of the best. He had gone into each fight with the idea that his opponent had assaulted his young sister. But this idea became his master, and eventually he reached the stage that whenever he parted from a friend he could not rest until he had satisfied himself that he had not injured that person—thinking that he might have pushed him into a hole in the road or under a tramcar. The idea spread to include passers-by in the street, so that his life became a nightmare of doubt.

After the operation he remembered his previous behaviour and his fears, but they no longer worried him, with the result that although when leaving a friend he wondered if he had done him an injury, he realized that it was a silly thought and was not compelled to seek him out to reassure himself. Some six months later he had further improved, but had not returned to boxing.

The other two patients were both women.

One of them expressed the classical symptoms of having to get up many times per night to reassure herself that she had put out the light, locked up, turned off the gas and radio, or when she went out, of returning to see if she had locked up *et cetera*.

The other patient had the rather unusual symptom of not being able to use up the last of anything unless there was a fresh supply available for use in the home if necessary. This distressed her continually and was also a source of annoyance to her neighbours and the local shopkeepers whom she quite often knocked up at all hours in order to satisfy the demands of her tortured mind.

Both these patients also did well. One, however, developed a delirious confusional state for several days with marked restlessness before settling down. Both patients remember their previous fears, but now manage to laugh them off, still, however, recalling the distress that once attended them. I was left with the impression that the second woman still had a tendency to panic at times when using the last of anything.

Paranoia.

In the category of paranoia I have four patients. Their ages ranged from thirty-five to fifty-five years. Three were plagued by systematized delusions of persecution and were consequently distressed and depressed. The fourth had pleasant grandiose delusions that he was Prince

Peter of Russia and the Marquis of Sandringham and that he had several other titles. In each instance the personality was well preserved and the affect was consistent with the delusions. Outside their delusions the patients could converse quite intelligently on many topics and for short periods appeared perfectly normal, only to slip back to their pet subjects at the least hint.

As a result of the operation two patients did well. In one case the delusional system quite rapidly subsided and the patient was able to resume his occupation and normal life after some years of torment.

The other patient took almost twelve months before her delusions could be said to have faded, but during this time she stated that all persecution had ceased and her conversation and behaviour led one to believe that this was so; but she showed little insight.

"Prince Peter" did not fare so well. He was the oldest of the group and became confused and tremulous and his personality rapidly deteriorated.

The fourth patient died of cerebral hæmorrhage.

Conclusion.

It would be presumptuous to offer any conclusion on so small a series of cases—it is inevitable that such an attempt would be quite misleading. For example, the mortality rate in this series is much greater than that found over a large number of cases, in which the average rate approximates to 2%; but I should like to express some impressions gained from them.

Firstly, as seen in other forms of treatment of psychiatric disorders, the prognosis depends on these criteria: (i) An acute onset, particularly if precipitated by some psychological or physical trauma, rather than an insidious onset. (ii) A previous personality reasonably well balanced and integrated. (iii) An age under middle age or the absence of any arteriosclerosis or senility. (iv) The chronicity of the condition—the more chronic the illness and, therefore, the more the deranged patterns are fixed, the poorer the prognosis.

It was noticeable in some cases how the rumination over delusions, hallucinations and obsessional ideas ceased, and although these symptoms might still be present, they seemed to mean much less to the patient and certainly no longer dominated the picture. Insight into their illness was not a prominent feature. Also one noticed frequently that any affect was flattened.

Another point of interest is that the majority of these patients showed what might be called a frontal release stage for some days after the operation, becoming cheerful, bright, talkative, friendly, rather facile and simple, laughing loudly at silly little jokes and in some cases showing a lack of moral or social sense in behaviour and speech.

In the case of one or two elderly patients, when there was some organic brain change due to cerebral arteriosclerosis the prognosis was poor, the result of the operation being dementia.

In regard to indications for operation, as it is a major operation involving brain tissue, I do not think it should be attempted, particularly on young patients, until all other methods of treatment have been tried and have been shown to have failed. Care should be taken, however, that only months and not years are allowed to pass in this way. Again, one must assess the prognostic criteria of acuteness of onset, previous personality and physical fitness.

The operation appears to promise most success in those cases in which there is considerable rumination, as in obsessional states, in involuntal melancholia, and in some cases of paranoia. If there is much rumination over schizoid delusions and hallucinations, the operation is often successful in producing a flattening of the affect and in releasing the individual from preoccupation with his ideas and voices.

Following the operation one must be concerned with the rehabilitation of the patient. It is better to nurse patients away from the "chronic wards", but, if possible, in the more cheerful atmosphere of a convalescent villa or home.

They must not be pushed too rapidly, being given only tasks which are within their capabilities, as one must be careful to avoid any situation of insecurity and failure. It is interesting to see that in the sanatoria of Switzerland these wards are staffed with the most glamorous nurses.

Finally, amongst my colleagues in England the general feeling is that the operation has much in its favour and is being pushed for such conditions as chronic obsessional states, involutional melancholia and chronic depressive psychosis which have failed to respond to other methods of treatment.

THALASSOTHERAPY: ITS IMPORTANCE IN A PROGRAMME OF PUBLIC HEALTH.

By G. DALLA TORRE, M.D.,
Perth.

A "CURRENT COMMENT" with the heading "Thalassotherapy" appeared about two years ago in this journal,⁽¹⁾ and it suggested to me a note on this field, in which I worked for many years before my departure from Italy. At that time the war was on, more important problems were pressing on us, and the note remained in my drawer until now, when I thought my views might be of interest to other colleagues.

Thalassotherapy (*θάλασσα*, sea, *θεραπεία*, I heal) has been described as "the treatment and prevention of diseases by means of a seashore climate or a sea voyage".

Omitting all historical data (accessible in books and in articles in medical journals), we may say that during the last century thalassotherapy spread rapidly through Europe and England. As a result of the keen interest in this new branch of medical therapy a large series of investigations have been carried out to illustrate the results of this treatment in different pathological conditions and to try to explain scientifically the therapeutic action of the sea climate. Medical societies of thalassotherapy were formed in every country and an "Association internationale de thalassothérapie" had its headquarters in France.

In the years before the second World War a large number of institutions were built on the seashores of Europe to house patients in need of thalassotherapy. A wide range existed, from the small hostel capable of accommodating a few patients only to the marine hospital with many hundreds of beds, with all the medical and surgical facilities of a modern hospital.

At the Lido of Venice, on the shore of the Adriatic Sea, there is a good example of a modern marine hospital. This institution, growing gradually from a small wood-shed erected in 1868 by the Municipality of Venice to house during the summer a few dozen children suffering from rickets, evolved to its present size through the work of a wise, independent administration and the help of different bodies (benevolent institutions, large industrial organizations, State insurance against tuberculosis and private benefactors). The clinical section, with 1,028 beds (400 medical and 600 surgical), was filled to capacity all the year round; the climatic section, with 1,000 beds, functioned only in summer and was housed in buildings separate from the hospital. A large operating theatre, departments of radiology and radiotherapy, of physiotherapy and hydrotherapy, and of pathology, a gymnasium for medical gymnastics, an observatory of meteorology and a dispensary were housed in two central buildings. In separate buildings were the chapel, a hall for entertainment, an isolation block, the kitchen, store, library, nurses' quarters. Similar institutions exist in other regions of Italy, and in France, in Belgium, in England and in Russia.

The main initial indications for thalassotherapy in Europe were rickets and extrapulmonary tuberculosis; both conditions were rather frequent in the towns as well as in the country. Many years of experience showed that thalassotherapy was also beneficial in other conditions, as will be seen later.

The expansion of thalassotherapy in the United States of America contrasts rather singularly with that in Europe; in a country in which sanitation is so lavishly sponsored by cities, States and the Federal Government, and in which the coastline extends for 6,000 miles, only 20 institutions for thalassotherapy could be found until 1942, and among them only three worthy of mention.

Professor Coryllo, of New York, in his report to the Eighth International Congress of Thalassotherapy (Montpellier, June, 1938), gave an interesting explanation of this situation and referred to two principal causes: (i) the great development of orthopaedic surgery and the particular emphasis put on the surgical treatment of tuberculosis of bones and joints, which deprived the American maritime stations of the importance which was attributed to them in Europe; (ii) the almost complete eradication of glandular and peritoneal tuberculosis in the United States of America. This phenomenon, which is amazing when we remember the large number of similar tuberculous manifestations that were encountered in Europe before the recent war (and which are probably still more common now), Professor Coryllo believes to be due to the eradication of bovine tuberculosis from the United States of America. During the last twenty years a thorough supervision of dairy cattle has been carried out in all States and every cow giving a positive reaction to the tuberculin test is slaughtered, the owner being compensated by the State. Attached to the report is a diagram, compiled by the statistician of the New York Tuberculosis and Health Association, showing that the number of deaths of children from all forms of tuberculosis had decreased from 87 per 100,000 in 1910 to 12 per 100,000 in 1935, those from pulmonary tuberculosis had decreased from 20 to 6 per 100,000 (one-sixth) and those from abdominal tuberculosis had decreased from six to one per 100,000 (one-sixtieth).

Professor Coryllo adds that most striking is the decrease of glandular tuberculosis, the ascitic form of peritonitis and the so-called idiopathic pleurisy. Such conditions are exceptionally seen in large institutions, such as the Sea View Hospital of New York City, which has 1,600 beds for adults and 235 beds for tuberculous children.

Rich, in "Pathogenesis of Tuberculosis", states that in the United States of America the decline of tuberculosis among the whole population has been from 201 per 100,000 in 1900 to 45.9 per 100,000 in 1940. (In Western Australia the incidence is now about 35 per 100,000.) Rich also states that the incidence of bovine tuberculosis in cattle in the United States has been reduced from 4.9% in 1918 to 0.3% in 1941 by the slaughter of positive reactors to the tuberculin test.

Frontali, in "Extrapulmonary Tuberculosis in Childhood" quotes statistics with regard to the frequency of bovine infection in human tuberculosis. The bovine bacillus has been found in about 1% of cases of pulmonary tuberculosis, whereas in cervical adenitis it has been detected in 40% (Germany), 45% (England), 70% (Scotland) of cases. The human bacillus infection has a prominent importance also in extrapulmonary tuberculosis.

It must be mentioned that in recent years numerous American medical authorities have insisted on the advisability of expanding thalassotherapy on the lines of European practice. In Australia the institutions used for patients in need of thalassotherapy are few, of small size and usually limited to the admission of children.

Before we examine the indications for thalassotherapy as considered established in Europe, and before we discuss the advantages of the extension of this treatment in Australia, I must explain clearly what we really understand by thalassotherapy.

The Scope of Thalassotherapy.

The annual vacation spent at a seaside resort represents a good investment for the man who has worked all the year round in office or workshop in the dusty town, with few or no opportunities to enjoy fresh air and sunlight. At the seashore he can have as much sun as he likes, he can swim and perform other exercises in the open air until he is exhausted, he can have his meals arranged as

he prefers. At night nobody will prevent him from dancing or playing cards until late. At the end of his holiday he will go back to his usual work in town, satisfied that he has had a lovely time at the beach and feeling refreshed in body and mind.

Children usually follow at the seashore a more regular life, but often excess of sun, unsuitable food and poor accommodation cause them some sort of upset lasting for a few days or longer.

The sojourn at the seashore is not *ipso facto* "thalassotherapy", but it becomes so when special rules are followed, different in each case on account of (a) the disease being treated, the condition of the patient, the reaction of the patient to the climate, (b) meteorological characteristics of that particular shore in that particular season.

Thalassotherapy, like any other branch of therapeutics, needs accurate and intelligent supervision to produce a good result in a suitable illness. A correct diagnosis and proper indications are fundamental; an accurate watch on the patient's condition, especially during acclimatization (probably climate intolerance is only the effect of a wrong handling of the patient during the first weeks in the new climate), a strictly adhered-to time-table of hours of rest and of sunlight treatment (if indicated), and a well-balanced diet rich in vitamins are some of the important essentials of this treatment. Experience has shown that all these rules can be enforced only in an institution well directed and well staffed by experienced doctors and nurses.

Finally, I should prefer to use the word "thalassotherapy" to indicate the treatment at the seashore of particular pathological conditions, in accordance with well-established rules, and preferably in specially arranged institutions.

The physical properties of the marine climate have been studied extensively, but the conclusions reached are not all concordant; the same may be said concerning what has been written about the biological effects of the marine climate on the human organism.

It is worth while to summarize the conclusions reached by the Eighth Congress of Thalassotherapy on the meteorological factors of the marine climate. The need for pursuing research in climatology for a considerable number of years was stressed, together with the use of perfected meteorological apparatus and a standard technique, so that it would be possible to compare the data collected in different localities. It was stated that special importance should be placed on the study of the electrical condition of the climate. But the most important point seems to be the study of the contemporary variations of all the meteorological factors of the climate and the determination of the biological action of the resultant, which is more important than the study of the action only of any one component.

A study of this kind needs a complete laboratory and trained workers in meteorology, biology and medicine. Perhaps in the coming years a similar enterprise will be possible in Australia. These studies will clearly show us why a climate is stimulating or sedative, and will also give us the reason of "climatic saturation"—that is, the reason why a climate favourable to a certain patient ceases to be favourable at a certain moment, when a different climate will be able to complete the curative action of the first.

Indications for Thalassotherapy.

For the present it seems reasonable to follow the indications for thalassotherapy laid down by distinguished clinicians in the last fifteen years, and based on the honest evaluation of the results obtained in the treatment of patients who have been followed up for a sufficient number of years.

The principal indications for thalassotherapy are found in the following conditions: (a) tuberculous adenitis; (b) tuberculous peritonitis (ascitic and plastic); tuberculous pleurisy (when freedom from parenchymatous involvement of the lungs is considered proved after exhaustive radiological and bacteriological investigation); (c)

tuberculosis of the bones, joints and skin; (d) rickets; (e) so-called pre-tuberculous conditions; (f) chronic non-tuberculous inflammations of the nose, pharynx and bronchus, and in some cases of asthma; (g) convalescence from acute diseases (pneumonia, influenza, typhoid fever, malaria, infantile paralysis); (h) hypochromic anaemia, chronic non-tuberculous lymphadenitis; (i) chronic inflammations of the pelvis in women.

Without discussing the treatment of tuberculosis of the bones and joints (which is not within my competence), I wish to express the opinion that, together with surgical treatment, thalassotherapy is indicated to improve the general health of the patient.

Among the contraindications I would mention tuberculosis of the lung, of the kidney, of the intestine, hyperthyroidism and diseases of the heart and blood vessels.

Since extrapulmonary tuberculosis has a prominent position in the list of indications for thalassotherapy, it might appear unnecessary to have seashore institutions in a country such as Australia, where it is the common opinion that extrapulmonary tuberculosis is rather rare. It can be objected that opinions are not seldom wrong and that more accurate recent investigations seem to show that tuberculosis of the bones and glands is more frequent than is suspected. We must add that the systematic examination of the adult population for pulmonary tuberculosis will bring to light subjects with extrapulmonary tuberculosis as well as a large number of tuberculosis contacts with pre-tuberculous conditions, who might benefit from well-supervised thalassotherapy. Another large contingent of potential patients for a seashore institution can be found in those who contracted malaria in the second World War.

A marine hospital, situated in each State of Australia and capable of accommodating 100 to 200 patients, should be considered as essential to the care of patients with extrapulmonary tuberculosis and a few other conditions, such as those indicated, and should find a place in the framework of a new national health programme.

Summary.

A definition of thalassotherapy is given and the indications for this treatment are briefly resumed. The need for establishing seashore institutions in Australia is stressed.

References.

① THE MEDICAL JOURNAL OF AUSTRALIA, August 19, 1944, page 192.

SACRO-COCYGEAL DERMOID SINUS (PILONIDAL SINUS).

By GERALD BROSNAN, F.R.C.S., F.R.A.C.S.,
Melbourne.

MANY and varied are the names that have been given to the lesion known as pilonidal sinus. The term pilonidal sinus was allegedly introduced by Hodges in 1880, though the condition had been described in the literature some thirty years earlier. Other names given to it include "sacro-coccygeal dermoid", "post-anal dermoid sinus", "congenital post-anal fistula", "pilonidal fistula", "pilonidal cyst", "coccygeal sinus" and "sacro-coccygeal dermoid sinus".

The condition is primarily a sinus, and not a cyst; the latter, only rarely present without an obvious sinus (10% cases), is formed by a blockage of the sinus opening, and is thus a secondary manifestation of the condition. The term fistula is not a good one to apply, as it is now usually reserved for a track joining two epithelial surfaces. The track under discussion passes from the skin to end blindly, or in a dilatation lined either by granulation tissue or by epithelium. Only rarely does it communicate with the neural cord.

The term pilonidal—the most common in present-day use—is not the best, as the "nest of hairs" is not always

present; in fact, the majority of investigators have found it in only approximately 50% of cases.

The term "post-anal" is too general in its anatomical description, as it includes tumours and cysts which lie behind the lower end of the bowel, but are in front of the coccyx and sacrum. The lesion under discussion always lies posterior to the coccyx and sacrum, and has no relation to congenital lesions, which may arise from the post-anal gut or from the neurenteric canal and lie in front of these bones.

I consider the term "sacro-coccygeal dermoid sinus" the most accurate in describing the anatomical site, the pathological nature and the derivation of the lesion. Thus it lies over the sacro-coccygeal region, and is a dermoid sinus in that the primary sinus is lined by tissue indistinguishable from the skin, and is always situated in the mid-line.

ÆTIOLOGY.

The origin of the sinus is not accurately known. Many theories have been put forward as to its cause, the chief of which may be summarized under the following headings: (i) congenital—(a) dermoid origin, (b) neurogenic origin, (c) vestigial origin; (ii) acquired.

Congenital Causes.

Dermoid Origin.

Most of the exponents of the dermoid view of the causation state that the condition is in the nature of a "sequestration" dermoid; a few regard it more as a "traction" dermoid. The evidence available favours the latter view. It does not resemble the ordinary sequestration dermoid derived from primitive ectoderm, which is completely buried beneath the skin at lines of union during development. This gives rise to a cyst completely detached from the overlying skin, and having no primary sinus connected with it. In the lesion under discussion, the sinus is the primary condition, and there is no complete sequestration of the skin element at all. Rarely, as has previously been mentioned, a cyst alone may be found, and this is then due to blockage of the sinus by secretion and epithelial debris. Still the condition is not primarily a dermoid cyst, but a dermoid sinus, and as such it is found in 90% of cases. The evidence that it is more in the nature of a traction dermoid is inconclusive, but more reasonable. The lesion arises in the mid-line in relation to the skin dimple often present over the coccygeal region; this dimple marks the site of attachment of the primitive neural canal. This end of the neural canal is usually the last to be separated from the skin, and may remain partially attached to it for some time. During development traction on this region is caused either by the relative shortening of the spinal cord as it assumes a higher place in the spinal column, or by faulty retrogression of the tail bud. The skin is thus drawn in to various depths to form a sinus.

Neurogenic Origin.

Occasionally a communication has been found between the sinus and the spinal cord; also remnants of nerve tissue and even cerebro-spinal fluid have been found in connexion with the sinus. This has led investigators to postulate a neurogenic origin. That both the neurogenic and skin theories of origin have something in common is seen when the condition is regarded as a traction dermoid in the region where the skin and neural tube frequently maintain their last connecting link.

Vestigial Origin.

It has been held that the lesion arises from an embryonic remnant of a vestigial secondary sexual gland or from a rudimentary preen or uropygial gland found in certain species of birds. These views are not widely held, as no convincing evidence has been put forward to prove them.

Acquired Causes.

The earliest writers on this lesion considered that it was due to an infection from penetration of the skin by hairs. This view did not receive much support. It is interesting to note that some of the most recent writers

on this lesion have brought forward a similar view, and have advised a pre-operative epilation dose of X-ray therapy to get rid of the alleged causative agent.

PATHOLOGY.

The sinus is almost always found in the sacro-coccygeal region, and the deepest part of the track rarely reaches a higher level than the sacro-coccygeal articulation. Rarely it passes through this articulation to reach the spinal cord. If it is located higher than this level it is held to be more dangerous, as communication with the spinal cord is then more likely to occur. When infection supervenes in such a case, the possibility of meningitis or a subdural abscess must be borne in mind.

The track may have numerous ramifications and secondary lateral sinuses may develop. The track is lined by stratified squamous epithelium, and this may also be found in the dilated, cystic end. However, when infection has been severe or prolonged, the wall of the track, particularly in its deeper parts, is often found to be lined by granulation tissue. Microscopic evidence of infection in the wall of the track is usually found in most specimens, polymorphonuclear leucocytes, lymphocytes and plasma cells being present in varying proportions.

CLINICAL MANIFESTATIONS.

Age of Onset.

Like many other congenital pathological lesions, the condition usually becomes manifest in young adult life, commonly between the ages of twenty and thirty years. However, cases have been described in the newborn and as late as the seventh decade of life. Why such congenital lesions should often become manifest in adolescence is not definitely known. Some authorities consider the onset of this lesion at this particular time of life as due to hormonal factors, which play a part in regulating body growth in general, and body hair and skin structure in particular. Others attribute the onset to repeated minor trauma. Certainly this is often the factor which draws attention to the lesion; in other cases, it may hasten the onset of signs and symptoms of the underlying condition. The recently coined term "jeep disease" is an attempt to show the part trauma plays in the disease.

Symptoms.

The common symptoms are both pain and discharge; occasionally only one or other may be present. The pain occurs over the sacro-coccygeal region, and except in acute abscess formation, is usually of a dull, aching character and often intermittent. The discharge is usually purulent but not copious. A painful swelling may be present when the sinus becomes blocked; copious purulent discharge may follow this and relieve the pain.

Signs.

The two main signs are (a) the presence of a sinus (90% cases) and (b) abscess formation (70% cases). The sinus is often pin-point in size, and may easily be overlooked. The primary sinus is always in the mid-line, and when it is probed, its direction is found to be upwards towards the head. One or more lateral sinuses may also be present; these are the result of lateral abscesses breaking through the surface. There is often a history of recurrent abscess formation. The abscess varies in size, is usually of the subacute or chronic type and is found in the deeper soft tissues overlying the sacrum and coccyx.

DIFFERENTIAL DIAGNOSIS.

The following conditions must be distinguished from a dermoid sinus in this region: (i) boils and carbuncles, (ii) *fistula-in-ano*, (iii) ischio-rectal abscess, (iv) infected sebaceous cysts, (v) implantation dermoid, (vi) osteomyelitis, tuberculosis, syphilis, (vii) rare tumours, such as teratoma, chordoma, fetal adenoma.

A careful history and clinical examination will usually lead to the correct diagnosis; recurrent attacks of pain or discomfort, with discharge in the sacro-coccygeal region, and the presence of a mid-line sinus lined by epithelium,

are characteristic of a dermoid sinus. Hair is sometimes seen protruding from the sinus, which on being probed is found to pass in an upward direction.

Boils, carbuncles and infected sebaceous cysts are more superficial and do not have the characteristic epithelial-lined sinus. A *fistula-in-ano* in this region passes downwards towards the anus, and rectal examination may reveal the internal opening. An ischio-rectal abscess is usually more laterally and deeply situated, but occasionally may point near the sacro-coccygeal region; however, it usually does not reach the mid-line, while the direction of the track will reveal the diagnosis.

An implantation dermoid is rare in this region, and the history may give a clue to its presence.

The other lesions mentioned are also rare and will be suggested by the history and clinical examination. Confirmation may be obtained by means of special investigations, such as a full blood examination including leucocyte count, sedimentation rate and Wassermann test, X-ray examinations and biopsy.

TREATMENT.

Sinus with Abscess Formation.

If an abscess is present, incision and drainage are the correct treatment. Radical excision of the sinus is postponed until the condition becomes quiescent.

Sinus without Abscess Formation.

Sinus without abscess formation is the usual type met with, and it should be remembered at the outset that no single treatment has yet proved entirely satisfactory.

The various courses to be adopted may be discussed under the following headings.

Conservative Treatment.

Conservative treatment usually means that no operation is recommended, and the patient is advised to wear a pad, with or without some local antiseptic agent, over the part. There is something to be said for advising this procedure in certain cases.

First, the condition may cause very little trouble—so little that many patients may not seek medical advice for it. It was frequently found in routine examinations of young men during recruiting in the late war. Again, patients may prefer to put up with slight discomfort rather than undergo an operation from which a permanent cure cannot truthfully be guaranteed in every case. I know at least one medical man who prefers to put up with the inconvenience of an occasional slight discharge rather than undergo an operation. As far as can be ascertained from the literature, the mortality rate from the condition if it is left alone is negligible; fortunately it is also very rare for anyone to die from the condition after operation. Surprisingly, it also does not appear to be rated as a possible septic focus and so liable to undermine the general health of the patient. I have read of only one post-operative death from septicæmia. Meningitis has occurred, when a communication with the spinal meninges was present, but I have been unable to find any deaths reported from this cause.

The presence of a dermoid sinus in this situation is not such a rare lesion; Kooistra gives the incidence as approximately one in a thousand hospital admissions; most of the patients were in their third decade of life, and as the lesion is rarely seen in elderly people, the question of a spontaneous cure or at least permanent subsidence of troublesome symptoms must be borne in mind.

Operative Treatment.

The indications for operation may be set down as follows: (a) discomfort from the discharge; (b) recurrent infection or abscess formation in the sinus.

The operation recommended is complete excision, either with primary closure or with open packing. Everyone is agreed that complete excision is the first essential aim. Most surgeons attain this by widely excising the area containing the lesion and carefully examining the walls and floor of the cavity to see that no part of the sinus remains. The periosteum over the sacrum and coccyx

and the fascia over the medial parts of the gluteal muscles should be exposed to make sure that no part of the track is left in the depths of the wound. With tough fibrous strands running through the fatty tissues in this region, it is not always easy to decide whether any lateral ramifications are left. It has been stated that as these are often not lined by epithelium, it does not matter if a small part is left behind. This is not so, and any portion left behind is a source of infection and almost a guarantee of recurrence. I have found that the injection of a coloured dye, such as methylene blue, into the sinus prior to excision is a help in locating the presence of lateral ramifications, which may easily be missed otherwise. One is not able to use this aid when carrying out secondary excision following drainage of an abscess, and in these cases it is most difficult to tell whether all the possible ramifications have been excised.

Most difference of opinion exists on the question whether to close, or to pack open, the resulting cavity. Probably the great majority of experienced surgeons believe that complete excision and packing of the wound are the treatment of choice in most cases and will give the most satisfactory end results.

When reading through the many operations devised to promote rapid healing in these cases, one is struck by the multiplicity of procedures used. All have their advocates who point out the particular advantages of each method; but so far no conclusive figures of the end results of these methods have become available to warrant their universal adoption.

Among the many methods used to promote more rapid and permanent healing are the following: (i) special forms of suturing the wound, such as the use of deep mattress or figure-of-eight stitches incorporating the skin edges and the deepest part of the wound; (ii) immediate skin grafting of the cavity; (iii) undermining of the skin edges to form flaps, and the making of tension-relieving incisions adjacent to the wound; (iv) the suturing of the deepest part of the wound, the superficial part being left open; (v) closure of the cavity, a small drainage tube being left in it; (vi) a marsupialization operation.

Recurrence.—If we first examine the possible causes of recurrence, then we may be able to indicate those cases in which it may be reasonably safe to attempt primary closure.

The following are the main causes of recurrence: (i) sepsis, including the presence or development of infected granulation tissue pockets, and infection of wounds from the anal region; (ii) hæmatoma formation; (iii) dead space formation; (iv) failure to excise the lesion completely; (v) tension in the wound. Thus it is seen that primary closure may be attempted when a small dermoid cyst only is found on routine examination, no obvious sinus being present. This occurs in only about 10% of cases. Even in such a case precautions must be taken to prevent sepsis, hæmatoma and dead space formation, and tension in the wound. C. Naunton Morgan summarizes the position well when he states that it is unwise to try primary closures in the following circumstances: (a) when a large cavity is left after excision of an extensive sinus; (b) when infection of the wound has occurred; (c) when extreme tension of sutures will be necessary to obliterate the cavity; (d) in recurrence; (e) when the configuration of the patient will not lend itself to accurate closure of the wound; (f) when the wound is asymmetrical (lateral ramifications). Since sulphonamides and penicillin for local application have been available, there has been a greater tendency to employ primary closure of the wound; this procedure may avoid only a small possible source of recurrence—sepsis by organisms sensitive to these drugs. So far no noticeable improvement has occurred in the end results following this method of treatment. In fact, it is interesting to record the statement of one London surgeon recently reported:

One of the reasons for so many failures in treatment during the war has been that the advent of powerful bacteriostats has tempted the surgeon to "try his luck" and close primarily the gaping chasm of his wise and wide excision. Healing of the bottom from the bottom must still remain a fundamental rite.

As little foreign material as possible should be introduced into the cavity, and silk sutures in preference to catgut should be used to secure haemostasis. Kooistra found that, other things being equal, twice as many failures followed the use of catgut as followed the use of silk. Sulphonamide-penicillin powder is insufflated into the cavity. When this is being packed open, a "Vaseline" gauze strip is satisfactory to fill the cavity lightly and protect the adjacent skin edges.

Post-Operative Care.—The packing should be left alone so long as there is no undue discomfort or discharge from the wound. The first dressing is usually required between the seventh and tenth day, when the cavity is repacked; thereafter the newly forming granulations are disturbed as little as possible by dressings. The patient is better nursed in the prone position or on one or other side; this causes less discomfort than lying on the wound as recommended by some surgeons. The latter position is adopted with a view to applying pressure to prevent dead space or haematoma formation; but measures taken during the operation should be sufficient to prevent these complications. The bowels should be confined for seven to ten days after operation, provided the patient is in no great discomfort from the procedure. The patient is better kept in bed until the wound is completely healed, whether primary suture or open packing has been used. After two or three weeks gauze soaked in eusol is substituted for the "Vaseline" gauze, and when the wound is clean, scarlet red ointment is helpful in stimulating epithelial formation. When the granulations have reached the skin level, skin grafts have been used to hasten complete healing; unless this is expertly done, however, no great gain is achieved.

Lastly, the patient should be warned not to allow any undue pressure by clothing *et cetera* on the newly formed epithelium, which is easily damaged in the first few months.

Comment.—In conclusion, when the end results of treatment are assessed, due regard must be paid to the fact that troublesome recurrence very frequently does not arise till twelve to twenty-four months or longer after the initial operation. In those reviews in which the average length of the follow-up investigation has been less than twelve months, the deductions are misleading. It is not very difficult to obtain healing of a wound, primarily sutured, by the end of a week or two; the question is whether such wounds will always remain healed. Nearly all patients who have recurrences leave hospital after their first operation with the wound apparently healed; many of these cases even pass into the records as successful results after primary closure. Such records must be regarded as fallacious.

SUMMARY.

1. Pilonidal sinus is better termed sacro-coccygeal dermoid sinus. It is of congenital origin, being in the nature of a traction rather than a sequestration dermoid sinus.
2. The main pathological and clinical features are given, together with the differential diagnosis.
3. With regard to treatment of the usual type of dermoid sinus, apart from complete excision, about which everyone is in agreement, there is a place both for closure of the cavity and for packing it open. In the present state of our knowledge, packing open the cavity is much more frequently indicated, and gives the better end results. At present the main objection to it seems to be economical rather than medical.

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PLEURAL ADHESIONS: THEIR EFFECT ON AND TREATMENT IN AN ARTIFICIAL PNEUMOTHORAX.

By ALAN H. PENINGTON,
Melbourne.

ONE of the greatest obstacles to progress in medicine is complacency. This fault is most apparent in the attitude adopted by physicians who practise the artificial pneumothorax treatment of pulmonary tuberculosis, where the "*spes phthisica*" appears to affect the physician to as great a degree as, or a greater degree than, the patient. It is salutary to realize, as Burnet⁽¹⁾ has pointed out, that "so far it is almost impossible to find real evidence that therapeutic measures have been responsible for any significant part of the diminishing general mortality from tuberculosis". Whilst it may be argued that morbidity has been reduced to a greater degree than mortality in this disease, no statistical evidence can be produced to support this contention, and it is therefore necessary for those of us who are concerned in the treatment of this disease constantly and critically to review our methods of therapy. Pinner⁽²⁾ has stated that "the results of collapse measures, particularly pneumothorax and phrenic paralysis, appear to be better after two to four years following the start of treatment than after five or ten years", and this observation is confirmed by the experience of all men practising this form of treatment.

Artificial pneumothorax is employed in pulmonary tuberculosis to assist the focal lesions in the lung to heal by assisting fibrosis and scar contraction and reducing the danger of spread of the infection by diminishing the range of movement of the diseased area. In order to appreciate the principles of this form of treatment, it is necessary to study the mechanism of artificial pneumothorax and those factors which will assist in or prevent the achievement of this purpose. If any one factor can be shown to prevent satisfactory control of the disease by this method, and it is possible to overcome this factor by some procedure, then the more extensive use of this procedure must be advocated. Such a procedure is the division of pleural adhesions by the closed method—internal pneumonolysis.

The Mechanism of Artificial Pneumothorax.

In the thorax, the lungs are fully aerated and expanded as the result of the interaction of various forces. The lung parenchyma consists of bronchi, bronchioles and alveoli, which are in direct communication with the outside atmosphere, and supporting tissue consisting of vessels, fibrous tissue and elastic tissue. The lungs are covered by the visceral layer of the pleura, which is in intimate contact with the parietal layer that lines the thoracic cage. The pleural space is a partial vacuum, as the pressure in this space is six to twelve centimetres of water below atmospheric pressure. The lung tissue contains in its alveolar and bronchial spaces air at normal atmospheric pressure, and there is therefore a gradient of pressures in the alveoli and in the pleural space. As a result of this pressure gradient, the alveoli are normally expanded, and the two pleural layers are kept in intimate contact.

The parenchyma of the lung also contains a large number of elastic fibres arranged along the bronchial walls and surrounding the alveoli. This tissue, by virtue of its nature and distribution, will, if unopposed, produce concentric contraction of the alveolar tissue of the lung.

These forces—the "suction" effect of the pleura and the "pulsion" effect of the atmospheric pressure, as opposed to the contractile effect of the elastic fibres—are normally present in the expanded lung; but in the presence of disease in the lung, the relative importance of the forces differs from the normal. Where there is chronic infection in the lung, air entry into the pulmonary alveoli is diminished, but the elastic tissue fibres still appear to be normal.⁽¹⁾ One of the forces normally operative in maintaining full expansion of the lung—namely, the intra-alveolar pressure—is no longer effective in the diseased area, and two forces only are active, namely, the suction effect of the pleura and the contracting effect of the elastic fibres. If the suction of the pleura is minimized by the introduction of air into the pleural cavity—that is, if an artificial pneumothorax is induced—so long as the pressure in the pleural space is below atmospheric pressure, normal areas of lung will be aerated by virtue of the intra-alveolar pressure; but in the areas of disease, there will be an unopposed action of the elastic tissue fibres, which will produce contraction of this area to a greater degree than will occur in the healthy portion of the lung. The greater degree of collapse of the diseased area seen in artificial pneumothorax in association with pulmonary tuberculosis is described as "selective collapse", and the pneumothorax is described as "anatomically ideal".

The Late Results of Pneumothorax Treatment.

Artificial pneumothorax has now been practised in the treatment of pulmonary tuberculosis for fifty years, and many studies of survival rates after treatment have been made. Hjaltestad and Törning⁽²⁾ in 1936 studied the results of treatment in 191 cases in which treatment had been completed for five to fifteen years, and concluded that "on the whole it may be stated that when the pneumothorax was ideal, 80-90% of the patients were well; when, on the other hand, the pneumothorax was incomplete, 80-90% died". Saugmann and Gravesen⁽³⁾ estimated that, when the artificial pneumothorax was anatomically ideal, 70% of their patients were well and working after ten years, but when the pneumothorax was not anatomically perfect, only 22% of patients were well.

These studies are typical of many which have been made, and indicate the importance of an ideal or anatomically perfect pneumothorax in the efficacy of this form of treatment.

Factors which Prevent Selective Collapse.

As selective collapse depends on two factors—the elastic tissue contraction in the lung and the uniform pressure alterations in the pleural cavity—interference with either of these will prevent the production of an ideal pneumothorax. Pulmonary emphysema is the commonest condition in which the pulmonary elastic tissue is affected in such a way that it prevents selective collapse of diseased areas in the lung. In the pleural space, mechanical adherence between the two pleural layers will effectively prevent retraction of the lung. This adherence may be over a large area with close adherence of the two pleural layers—pleural symphysis—or it may affect areas of varying size in which strands or bands of fibrous tissue pass between the two pleural layers. These adhesions by their mechanical effect interfere with the collapse of the lung in the region of their visceral attachments, and oppose the action of the elastic fibres in the area beneath the adhesion. Dormer, Friedlander and Wiles⁽⁴⁾ claim to have demonstrated by bronchography that concentric alveolar contraction takes place in the lung when an ideal pneumothorax is present, but that in the presence of pleural adhesions the alveoli about the base of the adhesion do not undergo this contraction.

Selective collapse is therefore prevented when pleural adhesions are present in a pneumothorax; but unfortunately these are found in approximately 80% to 90%

of pneumothoraces.⁽⁵⁾ These adhesions are not always associated with areas of radiologically demonstrable pulmonary disease, the lung tissue at the base of the adhesion often appearing healthy in X-ray films of the chest. However, a study of the pathology of pleural adhesions and of their formation shows that the presence of the adhesion is itself indicative of the presence of tuberculous infection at its base,^(6,7) even if this infection cannot be demonstrated radiographically.

Discussion.

If artificial pneumothorax is effectively to control pulmonary tuberculosis, we must reconsider the criteria of a satisfactory pneumothorax. The maximal benefit can be obtained from this form of treatment only when selective collapse of the diseased area of the lung is possible. In order to attain this end, pleural adhesions must be divided whenever possible. Some observers maintain that pleural adhesions do not adversely affect a pneumothorax if there is no radiologically demonstrable lesion at the base of the adhesion;^(8,9) but the arguments already submitted indicate that, regardless of X-ray evidence, disease is always present at the visceral end of the adhesion, and that the collapse of these areas is always adversely affected by the adhesion.

Internal pneumonolysis as first carried out by Jacobaeus and developed by later workers allows a high percentage of adhesions to be completely, and in the hands of experienced operators, safely divided. It is possible by the use of this procedure to convert a certain percentage of unsatisfactory pneumothoraces to pneumothoraces which are "anatomically ideal", and we must be forced to the conclusion that whenever pleural adhesions are present in a pneumothorax, the pneumothorax must be regarded as unsatisfactory until the adhesions are divided. Because of the high incidence of pleural adhesions, the operation of pneumonolysis should be an inevitable and logical accompaniment to artificial pneumothorax in a large proportion of cases.

Summary.

1. As yet no conclusive evidence of the efficacy of modern therapeutic methods in the reduction of the mortality rate in pulmonary tuberculosis has been advanced. Therefore any new procedures which may increase the efficacy of artificial pneumothorax must be fully exploited.
2. The major factor which determines the efficacy of artificial pneumothorax is the presence or absence of pleural adhesions.
3. Pleural adhesions always prevent selective collapse of areas affected by pulmonary disease, whether the effect is or is not radiologically demonstrable.
4. Whenever possible, all pleural adhesions in an artificial pneumothorax should be divided regardless of their apparently benign effect on the areas of disease demonstrated by X rays.

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Reports of Cases.

ABSENCE OF THE RIGHT LUNG, CONGENITAL CYSTIC MALFORMATION OF THE LEFT LUNG.

By K. M. BOWDEN,

Department of Pathology, University of Melbourne.

A FEMALE child, aged fifteen months, died suddenly while she was eating an apple. She did not die from asphyxia, as was suspected, but from sudden failure of a considerably enlarged heart. The child had been born with an accessory thumb which had been removed by a surgeon. The only other abnormality noticed by the parents was that the child seemed to be "short of breath".

Post-mortem examination disclosed that the child was externally normally developed for her age; the thorax was symmetrical.



FIGURE I.

The right lung is absent; it is represented by the hollow bud indicated by the arrow. The left lung is large.

The right lung was absent and was represented by a tiny hollow bud indicated by the arrow in Figure I at the usual site of bifurcation of the trachea. The thorax was occupied by the remaining thoracic organs.

The heart was considerably enlarged, particularly the right ventricle, and was displaced to the right together with the other mediastinal structures. No structural abnormality was detected in the heart. The pulmonary artery was normal, apart from the fact that there was no subdivision into right and left branches; it entered the root of the left lung as a single vessel. The pulmonary veins on the left side were normal.

The thymus gland was greatly enlarged.

The left lung was voluminous and extended across into the right side of the chest. The left lung, the heart, the

thymus, and the remaining mediastinal structures filled the thorax.

The tiny undeveloped right hollow bronchial bud is shown in Figure II, which is a low-power photomicrograph of a section cut transversely across its lumen. This hollow bud was lined by ordinary bronchial epithelium. There had been some attempt at subdivision of the bud. One small downgrowth lined by pseudo-stratified ciliated columnar epithelium was found in the submucous coat on microscopic examination. The smooth muscle layer was imperfectly formed; only a few strands of muscle were found in one area of the wall of the bud. Mucous secreting glands, normal in appearance, were most abundant; they are well shown in Figure II. There were two normally formed sheets of hyaline cartilage, one on either side of the bud, and almost completely surrounding it. Blood vessels were numerous in the sub-epithelial tissue.

The left lung was large and possessed the usual two lobes. On macroscopic examination of sections of the lung, scattered throughout its substance, cystic spaces and

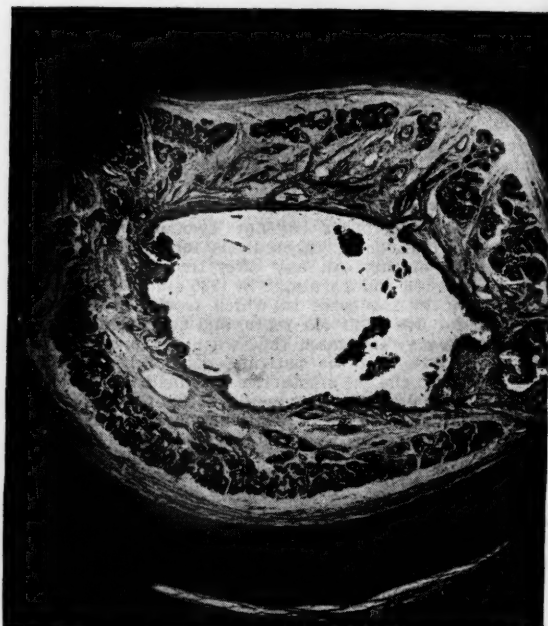


FIGURE II.

Photomicrograph of transverse section of the bronchial bud. The epithelium is detached. The mucous glands are well developed. Very little smooth muscle is present. Two plates of cartilage are visible.

dilated bronchi were evident. Microscopic examination of sections of this lung revealed that the cystic spaces had the usual features of congenital cystic malformation. Portions of two adjacent cysts are illustrated in Figure III. Both of these cysts were lined with bronchial epithelium, and each possessed in its wall a well-marked layer of smooth muscle. Some of these cysts were long, slit-like spaces. Cartilage was not seen in the walls of any of the cysts examined.

Dilatation of the smaller bronchi was readily recognizable on macroscopic examination. The structure of one of these dilated bronchi is shown in Figure IV. It is lined by normal bronchial epithelium and contains a well-defined layer of smooth muscle, and only one piece of hyaline cartilage appears in the wall. The cartilage is rudimentary in structure, and has the same appearance as the developing hyaline cartilage in early fetal lungs. Many similar dilated bronchi were observed showing evidence of arrested growth.

The alveoli generally were well formed; some patchy emphysema was present. The pleura was histologically normal. In the distribution and structure of the blood vessels throughout the lung no abnormality was apparent.

There was no microscopic evidence of any previous inflammation in the lung.

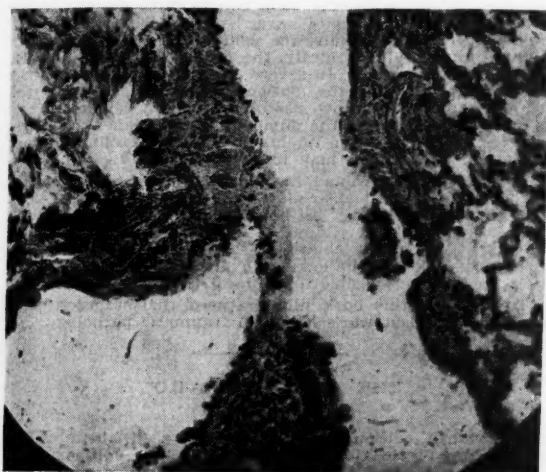


FIGURE III.

Portions of two adjacent cysts containing smooth muscle in the wall. The epithelium is largely detached, but typical bronchial epithelium is present in the lower portion of the cyst on the right side.

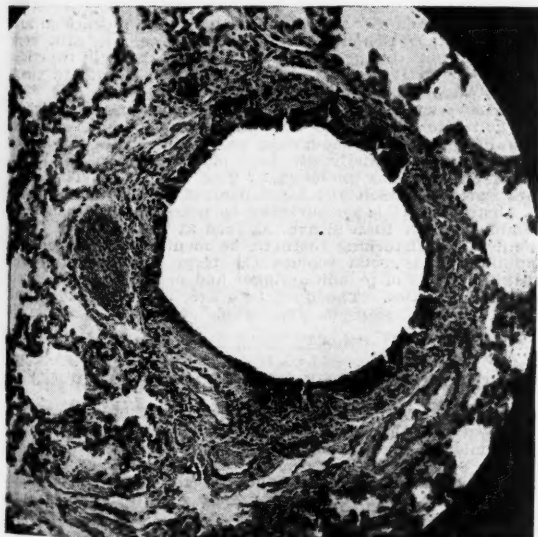


FIGURE IV.

A dilated small bronchus; one plate of embryonic cartilage is present in the wall on the left side.

Comment.

This is a good example of agenesis or arrested development of the bronchial tree, which is the important aetiological factor in congenital cystic malformation of the lung. Development of the bronchial tree has been almost completely arrested, with the formation of what is little more than an exaggerated dimple at the site of the bifurcation of the trachea. Interference with the development of

the left bronchial tree has also occurred. In some areas in the left lung this has resulted in the formation of cystic spaces lined by bronchial epithelium. Some of the smaller bronchi, many of which were dilated, also showed evidence of arrested growth.

When the question of the pathogenesis of congenital cystic malformation of the lung is considered, this example is of some value, as it shows evidence of arrested development, and there is no evidence that inflammation has played any part in the picture.

Dr. C. H. Mollison, the Melbourne medico-legal expert, tells me that he carried out an autopsy on the body of a stillborn child in which both lungs had failed to develop. The right and left sides of the bronchial tree were represented by rudimentary buds at the site of bifurcation of the trachea.

Acknowledgements.

Dr. Wilson, of Coburg, supplied me with the clinical information in this case.

Reviews.

SURGERY OF THE EYE.

"EYE SURGERY", by Stallard, of London, is a book which should be in the possession of every eye surgeon.¹ It is not a slavish summary of all eye surgery to date; operations which are obsolete, or which the author considers will become so, have been omitted. Compiled while the author has been on active service, at sea, in military transports and in camps, without access to ophthalmic literature, the book is greatly enhanced in value by being the product of the surgical experiences of the author. Although textbooks on eye surgery must at times fail to give adequate detail, this book is a mass of detail and skilled technical procedure. The majority of illustrations, which have been drawn by the author himself, are clear and concise, and give some indication of the author's artistic sense. The book is particularly helpful to a theatre staff as a guide to the layout of the theatre and as a reference for the instruments required at any particular operation. The instructions for anaesthesia and instruments are repeated for each operation.

There is a valuable section on the preparation and sterilization of eye drops compiled with the assistance of the pharmacist at Moorfields Eye Hospital.

Recent advances in anaesthesia, local, intravenous and general, have been most admirably embodied; and premedication, so often completely ignored by the eye surgeon, is given its appropriate place in the book.

Plastic surgery of the eyelids and orbit is the legitimate field of the eye surgeon, provided he has the aptitude and training for it, and the author thinks it desirable that he who is competent to do this type of work should do it. The chapters dealing with reconstruction of the lids and traumatic civil and military surgery are profusely illustrated with excellent descriptive drawings and with admirable photographs of wounds, all appearing in their appropriate positions. The general principles underlying plastic surgery are summarized and the careful planning and investigations of a plastic surgeon are described in detail. Moulds, dressing materials, technique of dressings and suturing are described.

Methods of repair with local flaps, free grafts of skin, mucous membrane, fat, cartilage, bone, fascia, muscle and pedicle flaps are described in such detail that a beginner could reproduce the details successfully.

Up-to-date surgery of the lachrymal apparatus and its preliminary investigation are given a fitting place as the recent advances in the technique of these operations alone have made it desirable that an up-to-date book on ophthalmic surgery should be issued. Conjunctivo-dacryocystostomy (Stallard's operation) for the relief of lachrymation due to an obstruction in the canaliculus where the fundus of the lachrymal sac is opened into the *lacus lachrymalis* appears for the first time in a book on operative eye surgery; the operation for external dacryocysto-rhinostomy is also described in detail, and there is no doubt that in the right hands lachrymation following a block at the lower end of the sac is cured; but, at the same time, it does not give

¹"Eye Surgery", by H. B. Stallard, M.B.E., M.D. (Cantab.), F.R.C.S. (England); 1946. Bristol: John Wright and Sons, Limited. London: Simpkin Marshall (1941), Limited. 84" x 54", pp. 456, with many illustrations. Price: 50s.

100% successes and dacryocystectomy is still necessary when failure is evident. The recognized operations on the extra-ocular muscles for strabismus and heterophoria and on the iris and lens are fully described with full technical details.

Various procedures for corneal transplantation, including those of Thomas, Castroviejo, Elschnig and Filatov, are also included. Iridencleisis, the now popular operation for glaucoma and cyclodialysis, are included along with the usual orthodox operations for that condition. The inclusion of surgical treatment for detachment of the retina, *hamangiogliomatosis retinae* treated by diathermy and catholysis, *glioma retinae* and malignant melanoma of the choroid treated by radon seeds or excision or both, the extraction of the non-magnetic intraocular foreign body, and division of vitreous bands, helps to make the book one of the most up to date in operative eye surgery.

MEDICAL PSYCHOLOGY.

"THE HUMAN APPROACH", by Henry Yellowlees, represents an attempt to reduce the explanation of medical psychology to its simplest terms. Although it perforce contains the faults inherent in the over-simplification of such a complex subject, for the student, for whom it is primarily intended, it describes in amusing fashion the real psychological mechanisms that determine the illogical attitudes and behaviour of his patients, whether such patients are ostensibly suffering from "organic" or "functional" conditions.

The author is naturally critical of a medical curriculum which introduces the study of medical psychology to the student at a time when, as a result of years of a strictly organic approach, he has been conditioned to regard the patient as a set of systems, and to forget the man as an individual. The new graduate is aware of the latest treatment of the rarest incurable disease, but the dyspepsia of the business man entangled in an affair with his typist remains a "functional" mystery.

Unfortunately there is throughout the book a tendency to represent psychiatric diagnosis as inordinately easy; the weary round of the various diagnostic services made by so many neurotics at the behest of their medical advisers is conclusive evidence against his claim that "the faintest glimmer of understanding of the human approach" will enable one to separate the "organic" from the "functional" except in the rarest cases.

There is an amusing and helpful chapter on the relationship between doctor and the law, written obviously as the result of long and sometimes painful experience in court work. The succeeding chapter on "Psychiatric Oddities" is completely out of place and might well have been omitted.

Two of the author's dicta might well be publicized in these days when "everyone is his own psychiatrist": (i) It is of no use merely adjusting the surroundings to suit the patient in anxiety states. (ii) One must work, play and live among the psychotics to develop a full understanding of them.

This little book has much of value to the student, but is of even more value to the psychiatrist, especially the more mechanically minded, and to all those to whom is entrusted the training of students in their clinical years.

THE PATHOLOGY OF TRAUMATIC INJURY.

A MONOGRAPH by J. V. Wilson is a review of the pathology of trauma as studied in the material made available by the second World War.¹ It is beautifully printed and illustrated on art paper.

The author states of shock that the importance previously attached to the local fluid loss has been vindicated and that nervous factors are of secondary importance, but that a bacterial toxin manufactured at the site of injury may play a part in the shock picture. At last we have learnt that cold skin in a shocked patient means peripheral vasoconstriction, and that the undue application of external heat should be avoided. Kidney damage and more rarely liver

¹"The Human Approach: A Book for Medical Students", by Henry Yellowlees, O.B.E., M.D. (Glasgow), F.R.F.P.S. (Glasgow), F.R.C.P. (Edinburgh), F.R.C.P. (London); 1946. London: J. and A. Churchill, Limited. 8½" x 5½", pp. 198. Price: 10s. 6d.

²"The Pathology of Traumatic Injury: A General Review", by James V. Wilson, M.D., M.R.C.P. (London), with a Foreword by Philip H. Mitchiner, C.B., C.B.E., T.D., M.D., M.S., F.R.C.S., D.Ch., K.H.S.; 1946. Edinburgh: E. and S. Livingstone, Limited. 6½" x 7", pp. 204, with many illustrations. Price: 20s.

damage may occur in burns, but would appear to be increased by infection, the use of tannic acid, or the use of sulphonamides on large burnt areas.

While much of this book may not be of very general surgical interest until the next world war, the chapter on fat embolism is of continuous and practical importance. The sublethal condition of fat embolism is being recognized in an increasing number of cases following fractures and other trauma. It occurs usually from two to three days following trauma, and three types have been described: first, the pulmonary type; secondly, the general type with brain and kidneys affected; and thirdly, the cardiac type with cardiac failure predominating. In severe cases the temperature may reach 103° F., and the patients are restless, pale and cyanosed, and some show loss of sphincteric control. There is often irregularity of the pupils and interference with light reflexes. Blood, sputum, fundus or urinary examination may reveal fat globules, as may lung puncture.

In a chapter on wound healing and wound infection, the author diagrammatically shows the multitudinous sources by which a wound may become infected, and points out the value of protein and vitamin C in wound repair. He mentions that one of the causes of the spread of gas gangrene is its production of the enzyme hyaluronidase, which hydrolyzes the acid responsible for connective tissue viscosity.

To sum up, this book fills the need that was felt for a review of the last war's lesson in traumatic pathology.

THE DIABETIC'S "ABC".

THE ninth edition of Dr. Lawrence's "Diabetic ABC" shows very little alteration from the 1944 edition.¹ The author has introduced a small paragraph about globin insulin, in which he corroborates the general impression of this form of insulin, namely, that its exact place in treatment is not fully established.

The wartime supplement has been dispensed with, but practically the whole of its contents are now included in the last section of the book under the title "Post-War Food Changes". Recipes for winter salads in the wartime supplement are now included in the diet section, together with the formulae for a vegetable soup and a mushroom and spinach soup. British diabetics, of course, are still very restricted, but the privileges gained for them in wartime through the activities of the Diabetic Association allow them a fairly favourable ration.

Dr. Lawrence adheres to his five-gramme scheme which is best suited to the diabetic. But our experience has been that most diabetics have enough to remember at the outset of treatment, and initially are best placed upon a fixed diet obtainable from any one of many good textbooks. The bread substitutes to which Dr. Lawrence refers are unobtainable in Australia. It is encouraging to note that he insists on weighing rather than measuring food at the outset of treatment. In a disturbing footnote, he mentions that the term "millilitre" may soon replace the term "cubic centimetre" in the marking of insulin syringes and perhaps on the labels of insulin bottles. The quantities are, of course, identical, but such confusion in the mind of a lay diabetic is unnecessary.

OCCUPATIONAL THERAPY FOR THE LIMBLESS.

As stated in the introduction to "Occupational Therapy for the Limbless", by Phyllis Lyttleton, this book is little more than a pamphlet.² However, it will prove most useful to any occupational therapist who has to deal with limbless patients. The author discusses at some length the importance of the correct psychological approach and stresses the need for special consideration to be given to all "amputees". All types of crafts from embroidery to woodwork are mentioned and the best type of work for each patient is classified. Perhaps the most useful part of the book is the list of the various gadgets devised to enable patients whose hands have been lost to do such things as typewriting, use a pencil, hold a cigarette and also feed themselves. These various gadgets are illustrated and can easily be adapted from the sketches.

¹"The Diabetic ABC: A Practical Book for Patients and Nurses", by R. D. Lawrence, M.A., M.D., F.R.C.P. (London); Ninth Edition; 1946. London: H. K. Lewis and Company, Limited. 8½" x 5½", pp. 85. Price: 4s.

²"Occupational Therapy for the Limbless", by Phyllis Lyttleton, C.S.P., M.A.O.T.; 1946. London: H. K. Lewis and Company, Limited. 7½" x 4½", pp. 48, with many illustrations. Price: 3s.

The Medical Journal of Australia

SATURDAY, MAY 24, 1947.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

THE SIGNIFICANCE OF THE GENE.

To Dr. H. J. Muller, of the Department of Zoology, Indiana University, was entrusted the task of delivering in England a Pilgrim Trust lecture, and he wisely chose as his theme the gene, for he has made many important contributions to the experimental investigation of this subject, the results having been published in widely different scientific periodicals. He has now collected his own findings and brought these into line with the conclusions of other investigators and incorporated the whole in his Pilgrim Trust lecture published in the *Proceedings of the Royal Society of London* in January of this year.

The original conception of a unit named the gene showed some similarity to the atomic hypothesis of Dalton; at first it was an assumption without a demonstrable material basis; later, as with the atom, came evidence which raised the postulate out of the realm of conjecture into that of established fact. Research on the gene has in recent years become a highly specialized pursuit, and it was, after all, not to be wondered at if men interested in human physiology and pathology were repelled by a formidable terminology and were not attracted by laboriously detailed investigations on the fruit fly. The time has come, however, when this genetic research must be given in medical circles the attention it undoubtedly deserves, for it is charged with meaning and has application to human affairs of a profound significance. Biologists are quickly coming to the belief that the gene lies close to the central mystery of life. As Dr. Muller remarks, the conception, though not proven, is very probable "that the most primitive forms of life consisted of nothing else than a gene". The gene may be identical with the chromatin fibre or be a part or attribute of this; fortunately the chromatin fibre can be observed, and somatic changes are so intimately associated with its changes of form and with its past history that we can provisionally assume identity. The gene has the faculty of reproducing itself in every detail and can repeat this process indefinitely. Textbooks most unfortunately continue to describe the chromatin fibre as splitting

longitudinally; it is indeed a very different process, for it is a synthesis of a double, not a mirror image, but a unit identical in three-dimensional structure and in chemical composition. Regarding the latter, one can say that nucleoprotein must play a decisive role here. We have long regarded nitrogen as conferring that molecular lability so characteristic of living process; but it is high time we began to investigate the function of oxidized phosphorus, whether in the form of phosphorylated protein or phosphorylated fat, for certainly some great secret lies hidden in phosphoric acid linkages.

Research has shown that a single gene may be altered by some submicroscopic agency, whilst its immediate neighbours are not, and that this alteration can be multiplied indefinitely. A chromatin fibre attached to its double, made synthetically from adjacent nucleoprotein, can show the phenomenon of transverse fracture and subsequent reunion not necessarily in the former exact position; such a "crossing over", as it is termed, will affect the somatic individual. A coiled chromatin filament may actually produce a different effect from a straight one. Sexual reproduction can be regarded as one of the most momentous advances in the evolution of living things. To quote Dr. Muller again: "Sexuality really opened the door of the germ plasm not merely to one other individual, but through it to a congress of the population as a whole. After the establishment of sexual reproduction mutations no longer had to wait their turn in line, but those occurring anywhere throughout a species could become multiplied simultaneously and could meanwhile become combined with one another." All the stranger does it appear when we find certain highly evolved plants renouncing this pooling of genetic attributes and falling back on self-fertilization.

The question arises, just where these discoveries on genes impinge upon human medicine and health. In the first place it must be noted that mutations are not, as many imagine, "sports" which confer a new or greatly improved faculty. The unfortunate fact is that the vast majority of mutations are harmful and that the species will deteriorate if these are not weeded out by the remorseless operation of the survival of the fittest. "Let the previous course of selection be relaxed through natural or artificial means and the tendency to disorder and degeneration gains and lowers the level. That is, not merely the evolution of a species to its present state, but even its maintenance requires a continuance of selection." The recognition of the problem that the more medicine progresses, the more does it interfere with natural selection, is not new. The attitude of the profession, at least in English-speaking countries, has been made perfectly clear, namely, that considerations of a genetic complexion must not enter into the work of the physician and surgeon. The proposal to sterilize degenerates met with a chilling response from the profession, whilst the efforts of German Nazis to improve their breed have aroused only horror and disgust. The ethical ordinance is to preserve, not to eliminate. That this must prevent genetic extermination, which would normally occur in the fight for existence, we must admit. We see this in the fact that owing to the success of the dental art the edentulous no longer suffer from malnutrition, nor are they sexually unattractive; in consequence we must expect the degeneration of the teeth

to gain in speed and the teeth to go the way of the eyes of fish which have lived for untold generations in dark cavern waters. Occasionally in evolution we find a disability surmounted by the adoption of some other device or the calling into action of another organ. The snake met mutations of faulty legs by learning to wriggle, and so the snake persisted though its legs did not. "The most constructive task", states Dr. Muller, "is not that of merely keeping undesirable mutant genes down to a reasonably low level, but of fostering that tiny minority of possible types having biologically progressive effects, in which lie all the genetic hope of the future. All this seems very Utopian now and quite out of harmony with the recent pronouncement of a most eminent and influential American scientist who has stated that the aim of biological engineering, as he calls it, is the provision of better food and clothing. . . . But before any kind of conscious guidance over our own genetic processes were attempted it is to be hoped that education would lead us gradually to desire it, so that it became an entirely voluntary concern of all and that increasing understanding and a better developed social consciousness would help us in revising our judgements as to what was really important and what was really desirable."

The other consideration is that the genetic material in germ cells is extraordinarily unstable and sensitive to environmental changes. Half an hour's treatment by 5,000r units of X rays of *Drosophila* spermatozoa at 17° C. caused a rise in the mutation frequency of about 50,000 fold. We then ask what is going to happen when human genes are subjected to radio-activity energy, whether arising from an ingested drug or from a "tracer" element in diagnosis. More important still is the possibility of massive bombardment of the body with radio-active energy when uranium disintegration becomes harnessed to industry and transport, as well as being used in bombs. We certainly must keep this possible danger in mind and go warily. When Bleriot flew across the English Channel in 1909 he remarked that the only limit to air travel in the future was the reaction of the human body, and in this he showed himself a true prophet. We are living in an age which is witnessing the greatest revolution in man's control of his physical environment; it behoves us to give as much thought to the working of that wonderful microcosm the living human being. As George Meredith warned us:

Keep the young generations in hail
And bequeath them no tumbled house.

Current Comment.

THE CONTROL OF AIR-BORNE INFECTIONS.

DESPITE advances in the treatment of many established air-borne infections, the control of the transmission of these diseases is still a major problem. A useful summary of the present position with an evaluation of modern engineering methods of control is contained in a recent report¹ from a special American subcommittee. In considering the diseases commonly regarded as "air-borne", the report states that their mode of transmission may be subdivided into four groups: by direct or indirect physical contact; by direct person to person droplet transmission;

by "droplet nuclei" transmission, that is, by "inhalation of small residues which result from evaporation of droplets and which may remain suspended in the air of enclosed spaces for long periods of time"; and by "dust" transmission, that is, by "inhalation or settling of large particles which arise from secondary reservoirs of infection on floors, clothes, or bedding, and which remain suspended in air for short periods of time". The first two groups are considered both to be "contact" transmission and are not discussed further. The methods of controlling "droplet nuclei" and "dust" transmission are stated to have developed in four principal directions: mechanical ventilation, ultra-violet irradiation, disinfectant vapours, and dust suppression. Ventilation is either by natural means such as the open window (a method that is useful though not always popular, especially in cold climates), or artificial, as by controlled air currents or air conditioning (mostly an uneconomical method by itself, but a useful and often necessary adjunct to other means of air disinfection). The bactericidal action of ultra-violet light is stated to be well established and accurately defined; technical developments permit of its use with safety in a variety of circumstances; it is valuable and desirable in specialized situations such as in operating theatres, but indiscriminate use is not advocated. The disinfectant vapours considered most suitable are the glycols, results with which have been encouraging, though technical problems of vaporization and distribution are yet to be solved. Dust suppression is either by application of light paraffin or spindle oil to floors or by oil impregnation of blankets, bedding and certain types of clothing. Treated fabrics show an increased capacity to hold dust and bacteria. The oiling of floors and bedding reduces dust and bacterial contamination of the air and is recommended as a useful hygiene measure; its value in controlling disease transmission is still, however, not established. It will be remembered that Phyllis M. Rountree in a report in this journal on April 5, 1947, on the use of oiled blankets found that their use had no effect on the incidence of cross-infection in a series of general surgical wounds.

The subcommittee has summarized its conclusions as follows:

1. The oiling of floors, blankets and bedding has now developed to the point of practical application in the suppression of dust. Such measures constitute good housekeeping. They reduce bacterial contamination of the air, but there is as yet insufficient evidence that they prevent disease. . . .
2. The available evidence strongly indicates that methods of air disinfection (ventilation, ultra-violet irradiation, and glycol vapours) are useful adjuncts to aseptic techniques in the reduction or elimination of air-borne infections in operating rooms and in contagious disease and pediatric wards. . . . It is essential that competent engineering supervision be available. . . .
3. It is not yet possible to compare the relative efficiency of ultra-violet irradiation and glycol vapours. . . . Recent designs of glycol vaporizers and automatic control devices give promise that adequately controlled studies may be conducted in the near future. . . .
4. The general use of ultra-violet irradiation or disinfectant vapours in schools, barracks, and in specialized industrial environments is not justified at the present time. . . .
5. There is no justification for the indiscriminate use of ultra-violet light or other methods for disinfecting air in homes, offices, or places of public congregation.

This report is thus of value as a warning against the general or indiscriminate use of methods which are and will remain adjuncts to other methods. The report of her recent investigations published by Rountree in this journal showed that an open mind must always be preserved and a critical attitude maintained.

PREFRONTAL LEUCOTOMY.

THE subject of prefrontal leucotomy has been discussed in these pages on previous occasions. Our first reference was in May, 1944, in a leading article dealing with "psychosurgery". The development of the operation was

¹ American Journal of Public Health, January, 1947, page 13.

traced and reference was also made to work by W. Freeman and J. W. Watts. Emphasis was laid on the never-to-be-forgotten fact that "once one cuts, there is no return". The general conclusion stated was that the place of the method had not been determined and that the greatest caution should be displayed in the selection of patients to be subjected to it. On January 26, 1946, the subject was again mentioned, and this time in connexion with two reports, the first by Berliner, Beveridge, Mayer-Gross and Moore, who wrote from Dumfries, and the second by Porteus and Kepner, of the University of Hawaii. On this occasion reference was made to social adjustment after the operation and to the possibility that a second operation might sometimes be necessary. It was also agreed that the application of the procedure should not become widespread until careful and continued psychological and psychiatric studies of its effects had been undertaken. The paper by J. H. Hurt, published in this issue, is the first on this subject by an Australian author to appear in this journal. The cases discussed by Hurt are some of which he had experience in the United Kingdom and the details that he gives will be read with interest by Australian psychiatrists, physicians and general practitioners. It still remains for an Australian author to report in this journal a series of operations performed on patients in Australian hospitals. This will no doubt happen before very long. In the meantime there has arrived from England an important document to which attention must be drawn. It is a report from the Board of Control of England and Wales on prefrontal leucotomy performed in 1,000 cases.¹

In a foreword it is stated that the report is designed to record the results of prefrontal leucotomy as disclosed by information furnished to the Board of Control in response to an inquiry initiated early in 1945. An attempt is made to state simply what leucotomy is, why the operation is performed, what are the results so far ascertained, and what important questions about the operation and its effects remain unanswered. Returns were received from 32 county and borough mental hospitals, six registered hospitals and five licensed houses. In addition the returns from two Scottish hospitals have been included. The report, which is mainly the work of Dr. Isabel Wilson, medical commissioner of the board, and of Mr. E. H. Warland, the board's statistical officer, is thus a compilation of results on which judgements have been passed by many persons. The operations, of course, were performed by many different surgeons. In spite of this the information is full of interest and it would appear that the conclusions are justified. The pages of the report are crammed full of facts and analyses and what follows is a résumé of the more important of them.

The purpose of the operation is described "crudely" as to break the connexion between the patient's thoughts and his emotions. It is to relieve mental tension, to take the sting out of experience, and thus to favour improvement or to hasten recovery from mental disorder—this seems to happen in successful cases. Nothing so devastating occurs as an absolute severance of thought from emotion; if it did the patient would become completely dull and unresponsive. Among the 1,000 patients there were 348 males and 652 females. Nearly 60 different terms were used in the returns under the heading of diagnosis, but only the broadest classification was adopted. There were 599 patients in the schizophrenia group, 250 in the manic depressive insanity group, 25 in the delusional insanity group, 34 suffering from neurosis, five suffering from post-encephalitic conditions, six suffering from "mental defect", 18 suffering from epilepsy, and 63 placed in a group called "various".

Of the patients treated, 35.3% were discharged from hospital; 24.8% were regarded as having recovered and 10.5% as improved. Of all the patients discharged from hospital, 9.3% suffered a relapse. The percentage of those who remained in hospital was 32.3, and of these 3.7% suffered a relapse. Those worse after operation were 1.0%. A special appendix is devoted to these (the number of

patients was eleven). One of the eleven patients died of pneumonia. In one case the patient began to have epileptic fits. In another the mental condition improved, but the physical condition became worse and habits deteriorated. In other cases the mental condition seemed to progress. Of the patients treated 6.0% died. Half of the deaths were attributed to the operation, and in these cases (numbering 30) hæmorrhage was the most frequent cause of death. The total incidence of fits reported after operation was 33 or 3.3%; the most significant figure in this regard is stated to be the fact that 21 patients had more than one fit. Among the schizophrenic group there was a discharge rate (recovered or improved) of 23.0%, exclusive of cases in which relapse occurred. The manic depressive group had a discharge rate of 50%, exclusive of cases in which relapse occurred. There was an apparent sex differentiation in favour of males in respect of patients reported as recovered or improved—males, 65.2%; females, 62.0%. For those discharged as recovered or improved the percentages were males 35.9 and females 29.9. When results were studied according to age it was found that patients of fifty-five years and over had the best discharge rate. It is thought that the form of mental disorder was a factor in this connexion as there was a higher proportion of manic depressive patients in this group. Study of results according to the duration of mental disorder showed that patients whose attack had persisted for less than two years formed one-fifth of the patients treated and it was found possible to discharge as recovered or improved 58.0% of them. Social behaviour was analysed in the case of 953 patients, that is, all surviving patients plus eighteen who died sufficiently long after operation for some estimate of the result to be made. The patients were "as before" in 244 cases; 295 were milder in behaviour or psychosis; 166 were cooperative; 242 were living as citizens and 11 were worse. Particular forms of behaviour were analysed in those cases in which the relevant information was available. Violence, present in 364 cases, became worse in three, prominent in 101, less in 81 and disappeared in 171 cases. Difficult behaviour, present in 175 cases, became worse in one, prominent in 64, less in 23 and disappeared in 87 cases. Habit of work is noted in 115 cases; it was lost in one case, remained unchanged in 19 and showed a gain in 95. Analysis of symptoms as a whole was made in 953 cases. After operation they became worse in 1.1%, prominent in 36.5%, less in 39.4% and they disappeared in 23.0%. In this analysis the difference between "worse" and "prominent" is not clear. If symptoms did not become less, but "prominent", they might possibly be regarded as worse; if not, the term "unchanged" should be used. An analysis of symptoms such as delusion, hallucination, depression and so on was made. The figures are too extensive to be quoted, but the percentages in which the symptoms disappeared ranged from 20.7 to 83.8.

The general conclusion is stated that leucotomy is a simple operation for the patient, if not always easy for the surgeon. This is an unusual kind of statement. Possibly the simplicity from the patient's point of view has to do with the after-treatment. In this case the statement would be true of many surgical adventures. However that may be, we can imagine that it will not always be simple for the surgeon. No one reading this report will dissent from the concluding statement that the operation should be carried out only after careful consideration of each individual case by experienced psychiatrists. It is particularly to be noted that after study of so large a series of cases the authors of the report are unable to judge of the effect of the operation on the patient's personality. They also hold that further study is needed before it will be possible to determine whether results are achieved at the loss of some finer mental qualities. In many cases the last point will be unimportant because it is a profound mental disturbance which makes treatment necessary. This report was not intended to cover post-mortem findings. Further enlightenment can be expected from such studies, and they will be the more valuable if they come from a clinic where operation has been carried out by one surgeon or by a team whose members work on similar lines.

¹ "Pre-Frontal Leucotomy in 1,000 Cases; Board of Control (England and Wales)". 1947. London: His Majesty's Stationery Office. 93" x 6", pp. 31. Price: 6d. net.

Abstracts from Medical Literature.

GYNÆCOLOGY.

Adenomyosis of the Uterus.

SAMUEL D. SPATT (*American Journal of Obstetrics and Gynecology*, October, 1946) has studied the endometrium in 52 patients with adenomyosis uteri and has correlated the findings with records from the literature on the subject. It is accepted that the endometrium reflects the state of the ovary and that in 80% of functional bleeding either an interval non-secretory endometrium or endometrial hyperplasia is present. This is assumed to be related to a lack of ovulation and the presence of follicular cysts in the ovaries. Adenomyosis is most common in the fifth decade of life and metrorrhagia and dysmenorrhea are the most common symptoms. The early interval endometrium occurs in young women and endometrial hyperplasia in older women generally. Adenomyosis is associated with anovulatory menstrual cycles in a large percentage of cases, indicating that either hyperœstrinism or lack of corpus luteum hormone is an important factor in the etiology. The high incidence of fibroids in adenomyosis indicates a relationship between the two conditions, but does not warrant the conclusion that one common factor is responsible for both fibroids and adenomyosis. Pelvic inflammation and ovarian cysts occur quite frequently in cases of adenomyosis, but the conclusion that these conditions are causative factors is not justifiable.

Conservative Surgery in Endometriosis.

CLAYTON T. BRECHAM (*American Journal of Obstetrics and Gynecology*, November, 1946), in a study of eighty patients with endometriosis, stresses the importance of conservative surgical treatment and draws attention to the high incidence of retrodisplacement of the uterus in this condition (42.5%). Conservative gynecological surgery is defined by the author as the removal of the least possible tissue to obtain the desired result. Every attempt is made to preserve ovarian function to the age of forty-five years or beyond, if the lesion permits, and in previously sterile women the preservation of child-bearing capacity to the age of forty years. Lesions of the ovary are excised when possible and the ovary is repaired by sutures. Sixty-one patients were under forty-five years of age and ovarian tissue was salvaged in whole or in part in 23% of these. Follow-up examination for a period of one to six years showed that all but two of the patients had been free from symptoms. A large share of the conservative treatment was made possible through correction of the retrodisplaced uterus by the Baldy-Webster operation. The author considers that there is some relation between retrodisplacement of the uterus and endometriosis and thinks that the mechanical interference with blood supply caused by retrodisplacement favours and accelerates metaplasia. For this reason it is recommended that all women with retrodisplacement should be examined regularly at intervals of six months and that suspension should be per-

formed if they develop symptoms or if the uterus becomes fixed. The days of castration for patients with endometriosis are gone and conservative measures should be the major consideration of the surgeon.

Carcinoma of the Vulva.

FRANK R. SMITH AND ROBERT S. POLLOCK (*Surgery, Gynecology and Obstetrics*, January, 1947) studied a series of 228 patients with carcinoma of the vulva and report a five-year cure rate of 26% among 100 reviewed patients. Special factors bearing on end results, such as the type of surgical treatment, the effect of radiation therapy, the site of the primary lesion and its histology, are discussed. Cancers of the vulva, which represent about 4% of all cancers of the female genital tract, mostly arise in the skin, but because of their presence in a relatively specialized organ with rich lymphatic connexions, the metastatic spread must always be considered. Although the condition is most prevalent during the seventh decade, 4.1% of patients were below the age of forty years. Pruritus, pain and bleeding, in that order, were the most common symptoms, and dysuria and frequency of micturition were not infrequent. Leucoplakia occurred in 36% of patients, 84% had an epidermoid type of carcinoma, and 11% had melanomata. Those patients whose inguinal nodes were normal on pathological examination showed the highest survival rate; the prognosis is much worse once the disease has extended beyond its primary site. The inadequacy of radiation therapy for the treatment of either the primary cancer or metastases is well known. The best results were obtained when a vulvectomy and bilateral groin dissection without removal of the iliac nodes were performed. It is questionable whether the removal of cancerous iliac nodes changes the prognosis. On account of the highly malignant nature of melanomatous lesions of the vulva, the removal of all pigmented tumours in this area is the only safe course to follow.

Phlebothrombosis and Thrombophlebitis.

CONRAD G. COLLINS AND EDWARD W. NELSON (*American Journal of Obstetrics and Gynecology*, December, 1946) discuss venous clotting complicating gynecological and obstetrical operations under the headings of phlebothrombosis, thrombophlebitis and suppurative thrombophlebitis, and make observations on prophylaxis and treatment. Intravascular clotting can be of two types: phlebothrombosis, in which there is partial or complete venous occlusion by an intravascular clot not associated with inflammation; and thrombophlebitis in which the clot is associated with and dependent on inflammation of the vein wall. In thrombophlebitis the clot can undergo liquefaction due to infection and produce purulent septic phlebitis. This latter condition is specially found in pelvic thrombophlebitis complicating post-partum and post-abortion sepsis. Pulmonary embolus following gynecological operations is the cause of from 12% to 25% of all post-operative deaths and prophylaxis is most important. A complaint of pain in the chest or of pain in the lower extremities, no matter how slight, should not be disregarded. Any signs of unilateral edema should be considered due to phlebothrombosis of the femoral or pelvic veins until proved

otherwise. The time-honoured treatment by rest and elevation is condemned and venous ligation above the thrombotic process is advocated even if it be necessary to ligate the vena cava. Infarction and embolism following thrombophlebitis of the extremities are rare and the authors treat the latter condition by lumbar paravertebral sympathetic block with procaine hydrochloride. Suppurative thrombophlebitis of the pelvic veins causes serious complications including death. Failure to respond to conservative measures, especially when infarction has occurred, is an indication for ligation of the vena cava and both ovarian veins. Following ligation of the vena cava the chances of post-operative complications can be minimized by routine lumbar sympathetic blocks.

JOE V. MEIGS AND FRANCIS M. INGERSOLL (*ibidem*) discuss venous thrombosis with its danger of fatal pulmonary embolus following gynecological operations and give their routine for prophylaxis, recognition and treatment. It has been shown that nearly all fatal emboli come from the veins of the legs and not from the pelvic veins. If it can be certain that a clot is present in any given vein, a ligation of the vein above the clot should be performed at once. The difficult problem is to decide what signs and symptoms are indicative of thrombosis. The consensus of opinion at the Massachusetts General Hospital is that failure to ligate the veins of a patient who has had a non-fatal pulmonary embolus or of a patient who has had definite signs of either thrombophlebitis or phlebothrombosis constitutes a serious neglect of the patient. The legs of all patients who have had operations are examined at every visit. The most important signs are tenderness of the calf, pain on dorsiflexion of the foot, and change in measurements of a leg in which a patient complains of pain. If a patient with old phlebitis is to have operation it is the duty of the surgeon to ligate the femoral vein, before or after operation, as a prophylactic measure. Post-operative treatment directed towards the prevention of venous thrombosis is described in detail and includes postural treatment, early passive and active exercise, and ambulation before the tenth day after operation. Anticoagulants are not used as a routine by the authors, but it is probable that this form of treatment will prove to be satisfactory in the long run. The authors are of the opinion that the danger to the patient from properly performed interruption of veins is minimal, and it is apparent that the operation is a life-saving one. The old treatment of phlebitis and phlebothrombosis by long immobilization and the use of hot and cold packs has been superseded by ligation of the vein above the clot.

Genital Bleeding Two or More Years after Spontaneous Cessation of Menstruation.

DAVID B. CHEEK AND JAMES E. DAVIS (*American Journal of Obstetrics and Gynecology*, November, 1946) have surveyed 514 patients with genital bleeding which occurred two or more years after spontaneous menopause. An analysis is made according to the organs affected and according to the proportion of benign and malignant lesions. The over-all incidence of malignant disease was 31.6%. The

cervix was the organ most frequently affected, and of all cervical lesions 50% were malignant. Disease of the uterine body was malignant in 50% of patients, but only 1.4% of vaginal lesions were malignant. The average age of patients at the menopause in this series was 47.8 years, and in the classification of groups according to age at the menopause there was apparently no real difference in percentage malignancy. There is no relation of the duration of amenorrhoea to the causal lesion and the duration of bleeding bears no relation to the pathological findings. The type of bleeding varies, but is found to have no significance in determining the aetiology. Bleeding after the menopause may come from anywhere in the genital tract, and to exclude malignant disease a complete study, including uterine curettage and biopsy of the cervix, is imperative in all cases, regardless of findings on pelvic examination.

OBSTETRICS.

Extrauterine Pregnancy.

ANTHONY H. DINDIA AND VINCENT J. TURCOOTE (*American Journal of Obstetrics and Gynecology*, August, 1946) report a clinical analysis of ninety patients treated surgically for extrauterine pregnancy. Of these patients 56% had a ruptured tubal pregnancy, 75% had free blood in the peritoneal cavity and 9% were in shock on admission to hospital. The mortality rate was 2.2%. The average age of patients was thirty years and 32% of patients were nulliparous. In 20% of patients there had been a previous abdominal operation and a previous operation for ectopic pregnancy had been done in 3.4%. Pain was the outstanding symptom present in all patients and was usually sharp and intermittent in character. Menstrual disturbance was the next important symptom—usually a period of amenorrhoea followed by vaginal bleeding (94%). Pain on moving the cervix was present in 90%, an adnexal mass was felt in 55% and a boggy mass in the pouch of Douglas in 50% of cases. Patients with active intraperitoneal hemorrhage usually had a high leucocyte count. All the extrauterine pregnancies were tubal with the exception of one which was an abdominal gestation of six months with the placenta attached to the mesocolon. The ampullary part of the tube was the most frequent site of gestation and the interstitial part the least frequent. Diagnostic colpotomy was not carried out in any of the patients and preoperative diagnosis was correct in 73% of cases.

Cervical Mucus.

W. T. POMMERENKE (*American Journal of Obstetrics and Gynecology*, December, 1946) has investigated the changes in cervical mucus during the menstrual cycle. At mid-cycle the mucus is increased in amount, there is lessened cellularity, increased water content and increased fluidity. Carbohydrate and amino acids are also present. Sperm migration at this time is at the rate of 3.0 millimetres or more per minute as compared with a rate of 0.25 millimetre per minute at other times in the cycle. Data on hand suggest that cervical mucus *in vitro* may inhibit the growth of certain strains of *Streptococcus hemolyticus* and *Staphy-*

lococcus aureus and enhance the growth of certain strains of *Neisseria gonorrhoeae*. From a teleological standpoint, the spermatozoa on deposition in the vagina at mid-cycle find an environment propitious for their nutrition and migration through the cervical canal.

The Time for Post-Partum Sterilization.

FRANK E. WHITACRE (*American Journal of Obstetrics and Gynecology*, December, 1946) has bacteriologically investigated the post-partum uterus in 100 cases. He made attempts to grow cultures; at the end of two hours only one in ten was successful, at the end of four hours six in ten were successful, at the end of six and also eight hours the number was seven in ten, at the end of ten hours eight, at the end of twenty-four hours nine, and from forty-eight hours onward all attempts were successful. One hundred and twenty-three types of organism were found, 39% being anaerobic streptococci, 17% aerobic staphylococci, 15% aerobic streptococci and 14% *Escherichia coli*. The greatest variety of organisms was grown at the end of four days. On this evidence the author decides that the optimum time to perform post-partum sterilization is from one to two hours after spontaneous delivery. He presents a review of 150 cases in which sterilization by the Madlener operation was carried out with no increased stay in hospital, no mortality, embolism or thrombosis, and no increased morbidity.

Constriction Ring Dystocia.

M. PIERRE RUCKER (*American Journal of Obstetrics and Gynecology*, December, 1946) defines constriction ring dystocia as that form of soft part dystocia characterized by the formation within the uterus of one or more bands of uterine muscle. These bands form opposite depressions of the fetal ovold and may occur at any level, effectively anchoring the fetus to the uterus so that there is no further progress in birth in spite of painful uterine contractions. Ring dystocia differs from Bandl's ring which is located at the junction of the active contractile portion of the uterus with the lower uterine segment. The author discusses 202 cases he has seen in 42 years in 13,575 deliveries occurring at or near full term. The diagnosis is made with certainty upon feeling the ring with the hand in the uterus and should be suspected when there is no obvious cause for the failure of labour to progress in spite of hard "pains". If the cervix hangs loosely around the presenting part, a constriction ring must be suspected. Aetiotogically the group showed increased age, abnormal presentations and a larger number than the average of borderline pelvis, which fits into the working hypothesis that the ring is a fatigue phenomenon. The condition may occur at any time in the three stages of labour. In the first stage or early in the second stage, two lines of treatment are available. The first is rest with adequate fluid intake and electrolyte balance. On the other hand, if the ring can be relaxed and the baby delivered, the labour is shortened and the fetal mortality reduced. The author has used ether and chloroform anesthesia with little success and in ten cases spinal anesthesia with no subsequent relaxation. Amyl nitrate and magnesium sulphate have also been recommended. In 150 cases, epinephrine

(1 in 1,000) administered subcutaneously in doses of five to eight minims has been most reliable. In seven cases it was necessary to give a second injection and in eight the drug failed to relax the ring. One mother and nine babies were lost in twenty cases prior to the use of epinephrine; among 182 mothers and 183 babies in whose delivery epinephrine had been used, there was no maternal death and the fetal mortality rate was 17.5%. Eleven of the infant deaths occurred in the first 23 cases.

Hydatidiform Mole.

A. T. HERTIG AND WALTER H. SHELDON (*American Journal of Obstetrics and Gynecology*, January, 1947), in an attempt to correlate the histological appearance of a hydatidiform mole and the subsequent clinical course, reviewed 200 specimens. They consider that the more malignant the trophoblast of the original mole, the more chance the patient has of developing some grade of chorionepithelioma, varying from the locally invasive, morphologically malignant chorionepithelioma *in situ* with an excellent prognosis, to the highly malignant, uniformly fatal chorion carcinoma. In the clinically benign group the combined cure rate may be as high as 92.5%, and, with the exception of chorion carcinoma, the other grades of chorionic malignant disease are all curable if properly treated by hysterectomy; as metastasis is rare, a conservative attitude of "scientific apprehensive expectancy" may be observed when some minor degree of morphological evidence of malignancy is present. Clinical malignancy is usually shown by subinvolution and vaginal bleeding, which indicate the need for repeated curettage and probably for hysterectomy. The test for chorionic gonadotropin is of little value, as it may produce a positive result for as long as sixteen weeks, the average being three months, following the expulsion of a benign mole.

Hydramnios.

L. CARNAC RIVETT (*American Journal of Obstetrics and Gynecology*, December, 1946) defines hydramnios as the condition existing when the amount of liquor amnii exceeds five pints. Occurring about once in every two hundred pregnancies, commonly between the twentieth and twenty-eighth weeks of gestation, it is likely to cause maternal distress. It is usually treated by puncturing the membranes through the cervical canal. The author describes a method that he uses whereby the amniotic sac is punctured through the abdominal wall. A spinal trocar and cannula are used with a collecting bottle and a suction pump, for he has found the liquor to be very rarely under increased pressure. One-third of a grain of "Omnopon" and one one-hundred-and-fiftieth of a grain of scopolamine are given one hour prior to operation; one-fourth of a grain of morphine is given subsequently and repeated twice. The maximum amount of fluid withdrawn at one operation was twelve and a half pints. In most cases the liquor will reaccumulate in three to four weeks and the procedure can then be repeated. Complications such as infection, perforation of the bowel, hemorrhage, fetal injury and placental detachment did not occur in this series of about fifty cases.

Bibliography of Scientific and Industrial Reports.¹

THE RESULTS OF WAR-TIME RESEARCH.

During the war a great deal of research was carried out under the auspices of the Allied Governments. It has been decided to release for general use a large proportion of the results of this research, together with information taken from former enemy countries as a form of reparations. With this end in view, the United States Department of Commerce, through its Publication Board, is making a weekly issue of abstracts of reports in the form of a "Bibliography of Scientific and Industrial Reports". This bibliography is now being received in Australia, and relevant extracts are reproduced hereunder.

Copies of the original reports may be obtained in two ways: (a) Microfilm or photostat copies may be purchased from the United States through the Council for Scientific and Industrial Research Information Service. Those desiring to avail themselves of this service should send the Australian equivalent of the net quoted United States price to the Council for Scientific and Industrial Research Information Service, 425, St. Kilda Road, Melbourne, S.C.2, and quote the PB number, author's name, and the subject of the abstract. All other charges will be borne by the Council for Scientific and Industrial Research. (b) The reports referenced with an E number may be obtained in approved cases without cost on application to the Secondary Industries Division of the Ministry of Post-War Reconstruction, Wentworth House, 203, Collins Street, Melbourne, C.I. Copies of these are available for reference in public libraries.

Further information on subjects covered in the reports and kindred subjects may be obtained by approaching the Council for Scientific and Industrial Research Information Service, the Secondary Industries Division of the Ministry of Post-War Reconstruction, or the Munitions Supply Laboratories (Technical Information Section), Maribyrnong, Victoria.

PB 37789. KARNOWSKY, D. A., *et alii*. An evaluation of methyl-bis (β -chloroethyl) amine hydrochloride and tris (β -chloroethyl) amine hydrochloride (nitrogen mustards) in the treatment of lymphomas, leukaemia and allied diseases. 1946. 52 pp. Price: Microfilm, \$2.00; Photostat, \$4.00.

In a study of sixty patients with various neoplastic diseases who were treated with nitrogen mustards at the Memorial Hospital, New York City, the authors found that methyl-bis (β -chloroethyl) amine hydrochloride (HN-2HCl), administered intravenously in doses of 0.1 milligramme per kilogram for four consecutive days (total dosage per treatment course, 0.4 milligramme per kilogram), showed high chemotherapeutic activity in the healing of neoplastic tissue injuries, and in certain manifestations of Hodgkin's disease, lymphosarcoma and leukaemia, it was to be preferred to tris (β -chloroethyl) amine hydrochloride (HN-3HCl), because of the tendency of the latter-named mustard to produce venous thrombosis at the injection site. A complete report of the findings, with typical case histories illustrative of each disease treated, is given in this study. Appended are a list of references and two tables, one giving a summary of the treatment and the results, the other showing the incidence of toxic reactions (nausea and vomiting) to the drugs. Reference is made to charts, but no charts are included in this report.

PB 40323. FAVOUR, CUTTING B. Preservative for concentrated protein solutions. (National Research Council Clinical Investigation Report 42.) May, 1944. 7 pp. Price: Microfilm, \$1.00; Photostat, \$1.00.

Merthiolate now in use in concentrated albumin solutions is discussed. Since the mechanism of action is through its combination with -SH-containing compounds, proteins which contain abundant -SH radicals are poorly protected by merthiolate. Carboxymethylxylamine hemihydrochloride acts by combining with pyruvic acid in media or in bacteria, thus inhibiting carbohydrate metabolism and preventing multiplication. It is bacteriostatic in concentrations from 5.0 milligrammes per centum, depending on the strain of bacteria. It is bactericidal in higher concentrations. All bacteria so far studied including sporulating organisms are held in check by 10.0 milligrammes per centum (1:10,000). Raising the temperature increases the effect of the drug, and prolonging the time causes eventual death of the

organisms inhibited, presumably from old age. Bacteriologic studies indicate that this compound is a suitable preservative for use in human albumin solutions.

PB 32725. HOUSEHOLDER, ALSTON S. A structural theory of the central nervous system. No date. 26 pp. Price: Microfilm, \$1.00; Photostat, \$2.00.

In 1938, starting from a simple schematic description of the dynamical interaction among individual neurons, N. Rashevsky initiated a theory the purpose of which is the development of quantitative laws of human and animal behaviour. An even simpler statement of the postulates involved was given by McCulloch and W. Pitts in 1943. In reviewing the 41 items of the attached bibliography, the author introduces the various terms, symbols and equations used in the analysis of perceptual processes, the discrimination of intensities, after-images, apparent motion, learning and conditioning, Gestalt transposition *et cetera*. Other topics dealt with are the distribution of judgements, multidimensional psychophysical analysis, aesthetic judgement (visual and auditory aesthetics), abstract thinking, psychotic and neurotic traits.

PB 40335. AUB, J. C., *et alii*. Circulating red cell volume in shock. Bimonthly progress report. October, 1943. 2 pp. Price: Microfilm, \$1.00; Photostat, \$1.00.

This document is a progress report of work done under contract number OEMcmr-131. Normal dog cells washed in 0.6%, 0.55% and 0.5% NaCl undergo a progressive increase in mean corpuscular volume. This change is not completely reversible on resuspension in 0.9% NaCl. Varying fractions of the total cells are hemolysed in 0.55% and 0.5% NaCl, and those remaining intact exhibit a slight increase in osmotic resistance. Survival curves after transfusion of compatible dogs' cells, stored at 4° C. in 6% bovine albumin in 0.85% NaCl, showed that fresh cells survived up to 90% for as long as seven days after transfusion. This preservative solution contained no dextrose or phospholipids and was not buffered. Human cells, not washed, resuspended in a 5% bovine albumin solution, buffered with phosphate to a pH of 7.1, but containing no dextrose or phospholipid, showed a progressive decrease in osmotic resistance on storage for seven days at 4° C., but retained their biconcave shape well during this period. A solution of hemoglobin (in 0.85% NaCl) prepared from dog cells containing radioactive iron was given to an 8.0 kilogram dog. Hemoglobin was demonstrable by radioactivity measurement and oxyhemoglobin determinations in the recipient's plasma for 72 hours after infusion.

PB 40320. BLAIR, H. A. Abdominal gas. (National Research Council Committee on Aviation Medicine Report 349.) July, 1944. 2 pp. Price: Microfilm, \$1.00; Photostat, \$1.00.

This is a summary of previous reports (see PB 40318 and 40319). The average abdominal gas volume of young men is about one litre. It is made up about equally of formed gas and swallowed air residue. It is not uniformly influenced by diet; a high carbohydrate diet is more likely to increase it than are gas-forming foods. It is not definitely altered by vitamin B, "Metropine", "Pavatine", "Prostigmin" or atropine. The incidence of gas pain in simulated flight to about 37,000 feet was studied in a group of young men under various conditions. No relation could be found between the incidence of pain in flight and the ordinary variations of composition of normal diet in terms of fat, protein and carbohydrate. But flights following two successive high carbohydrate or high protein meals show that high carbohydrate causes somewhat more trouble than is found with ordinary diet, while high protein causes very much less. "Pavatine" and "Metropine" and to some extent "Prostigmin" taken together with atropine increase the incidence of pain. Since the incidence of serious difficulty with gas differs considerably in different subjects and is practically zero in some, selection of personnel for high altitude is possible.

PB 40318. BLAIR, H. A., *et alii*. Abdominal gas. (National Research Council Committee on Aviation Medicine Report 193.) October, 1943. 17 pp. Price: Microfilm, \$1.00; Photostat, \$2.00.

Determination of the abdominal gas content by measuring simultaneously the pressure developed in the stomach and the decrease in volume of the abdomen during voluntary compression gives approximately the same result as the simpler method in which the content is derived from the changes in volume due to voluntary compression before and after imbibing known quantity of carbon dioxide as carbonated water. The average abdominal gas content of young men of average weight (150 pounds) is about 1,300 millilitres. There is no consistent change of gas content with time of day or after meals. Determinations made within two hours after defecation are not consistently smaller than the daily average. Methyl atropine nitrate ("Metropine") appears to decrease the gas content slightly. Vitamin B gives no change. In 110 simulated flights to 35,000 feet or slightly higher, severe discomfort due to gas

¹Supplied by the Information Service of the Council for Scientific and Industrial Research.

was experienced in 5-5% of the cases, moderate discomfort in 3-6%, and slight discomfort in 19-0%. The incidence of discomfort in flight was not consistently related to gas content except that small contents do not often give trouble. On flights of short duration, the gas content frequently increased even though moderate amounts were expelled. Gas-forming foods appeared not to cause trouble except possibly in one subject. Carbonated water, drunk shortly before flight, and melons were the only dietary factors which tended consistently to be harmful. Gas (500 millilitres) added to the stomach caused pain in seven flights out of fifteen, added to the duodenum by tube caused incapacitating pain in eight flights out of thirteen. X-ray photography showed a consistent relationship between incapacitating pain and the quantity of gas in the ileum, but not elsewhere. Difficulty with abdominal gas in flight is probably due to excessive amounts in the lower part of the small bowel, and remedial measures would be those which prevented accumulation in this region. Five tables and five graphs are attached. The work reported was done at the University of Rochester, New York, Department of Physiology, School of Medicine and Dentistry.

PB 40319. BLAIR, HENRY A. Abdominal gas. Progress report, numbers 1 to 5. October, 1943, to June, 1944. 9 pp. Price: Microfilm, \$1.00; Photostat, \$1.00.

In continuation of previous experiments (see PB 40318) the effect of 500 millilitres of air added by rectal tube to the colon has been studied in 25 flights. In eleven cases (44%) there was incapacitating pain between 25,000 and 35,000 feet. This incidence is less than with gas in the duodenum (60%), but much greater than the 5% found in normal flights without added gas. Pre-flight and post-flight X-ray pictures indicate that rather little gas added to the colon gets back into the ileum. Various foods and drugs (for example, "Prostigmin", bromide and atropine sulphate) were studied in regard to their possible effects on abdominal distension during flight. The results are presented in five tables.

PB 40338. EBAUGH, FRANKLIN G., AND BILLINGS, EDWARD G. An analysis of 100 psychiatric casualties and 100 control-adjusted soldiers in the Eighth Corps area. Monthly progress report, numbers 1 to 3. March, 1942. 9 pp. Price: Microfilm, \$1.00; Photostat, \$1.00.

The work reported in these progress reports was performed under contract number M-704 under the sponsorship of the Committee on Medical Research of the O.S.R.D. Purpose of the project was: (i) To establish a few indications of nervous, mental and physical defects for use by the induction centre's medical officers, by non-commissioned and line officers and by medical officers. The results are presented in a tentative synopsis of the findings which summarizes significant symptoms and test results. (ii) To establish practical educational procedures for the groups that have to do with selection, induction and training of the personnel of the armed forces. (iii) To initiate a practical plan for continuing such research and education for the army services concerned.

PB 40340. EBAUGH, FRANKLIN G. Association motor tests on psychiatric casualties and control soldiers in the Eighth Corps area. Monthly progress report, numbers 1 to 3. May, 1942. 4 pp. Price: Microfilm, \$1.00; Photostat, \$1.00.

It is assumed that the introduction of a complex motor act with the association technique makes for a higher reliability and a greater differentiation among groups of stable and unstable persons. Probably this is because the test procedure involves a far more complex coordinated effort on the part of the testee. It also seems apparent that the test could be quite quickly administered by gross examination of the left hand variations and by measurement of the verbal reaction times with a stop-watch, saving a marked amount of time. A new, simple apparatus has been developed. It was intended to predict the success or failure of a series of newly inducted aviation cadets on the basis of their association motor records. This work was done under contract OEM-CM-17 with the Committee on Medical Research of the Office of Scientific Research and Development.

PB 40342. EAGLE, HARRY. Diagnosis and prophylaxis of syphilis. Mode of action of arsenicals. Monthly progress report, numbers 1 to 16. November, 1942, to July, 1945. 45 pp. Price: Microfilm, \$1.00; Photostat, \$3.00.

This project was sponsored by the Committee on Medical Research of the Office of Scientific Research and Development. The reports summarize the results of experiments with rabbits on: (i) the prophylactic activity of phenyl arsenoxides, when incorporated in soap solutions; (ii) the therapeutic activity in experimental syphilis of sodium penicillin in aqueous solution, considered in relation to the frequency and duration of treatment; (iii) the degree to which that therapeutic efficacy is modified when the penicillin

is suspended in peanut oil and beeswax; (iv) the synergistic action of penicillin and "Mapharsen" (3-amino-4-hydroxy-phenylarsinoxide hydrochloride); (v) the therapeutic activity of penicillin when used in conjunction with fever; (vi) the suppressive action of small doses of penicillin, comparable to those used in the treatment of gonorrhoea, on the development of early syphilis in rabbits; (vii) the therapeutic dose of penicillin in early syphilis, considered in relation to the duration of the disease and the size of the inoculum; and (viii) the feasibility of curing syphilis with massive doses of calcium penicillin in oil and beeswax, administered over relatively short periods of time. Dosage and administration can be seen by fifteen tables. Also included is an abstract of a manuscript submitted for publication entitled "The Retardation and Suppression of Experimental Early Syphilis by Small Doses of Penicillin Comparable to those Used in the Treatment of Gonorrhoea", by Harold J. Magnuson and Harry Eagle.

PB 40337. EDWARDS, P. R. Salmonella typing sera. Progress report, numbers 1 to 27. March, 1942, to November, 1945. 27 pp. Price: Microfilm, \$1.00; Photostat, \$2.00.

This project was sponsored by the Committee on Medical Research of the Office of Scientific Research and Development under contract number OEMcmr-18. The various progress reports mention the preparation of H and O antiserum as well as of V serum; the isolation of cultures from man, animals and animal foods; and the identification of new Salmonella types. For most of the new types the diagnostic antigenic formula is given and differences between American and foreign cultures of the strain in question are stated.

PB 40336. ELMAN, ROBERT, AND MERRY, R. E. Human burns. Monthly progress report, numbers 1 to 8. February, 1944, to May, 1945. 14 pp. Price: Microfilm, \$1.00; Photostat, \$1.00.

This project was sponsored by the Committee on Medical Research and Development of the Office of Scientific Research and Development, under contract number OEMcmr-371. Experimental human and animal burns were caused by momentary application of hot oil or hot water of various temperatures. Local effects and pains were studied. Furthermore, 46 case histories of accidental human burns entering the hospital are presented in which the results of various therapeutic agents and treatments are described.

PB 40333. EVANS, G. T. Adrenal cortex and anoxia. Monthly progress report, numbers 1 to 7. March, 1942. 12 pp. Price: Microfilm, \$1.00; Photostat, \$1.00.

This document consists of progress reports of work done under contract number OEMcmr-43. The experiments were performed with mice and dogs. Use of desoxycorticosterone acetate and commercial whole cortical extract did not produce a significant change in resistance to anoxia. Mice into which Kendall's adrenal cortex extract was injected showed a better resistance to anoxia than uninjected or control injected animals; dogs did not respond to it. In one experiment, however, the visual acuity was retarded for 1,000 feet as compared to the average of controls.

PB 40332. EVANS, HERBERT M. Effects of adrenocorticotrophic hormone. Monthly progress report, numbers 1 to 8. May, 1942, to February, 1943. 16 pp. Price: Microfilm, \$1.00; Photostat, \$2.00.

This document consists of progress reports of work sponsored by the Committee on Medical Research of the Office of Scientific Research and Development under contract number OEMcmr-133. Methods for the extraction from fresh glands, for purification, separation of two components, and biological assaying are given. Preparations obtained from bovine pituitaries are closely comparable to those extracted from sheep pituitaries. Hypophysectomized rats receiving the preparation were able to resist cold, to survive prolonged fasting periods, and to keep their blood sugar at normal or abnormal levels during periods of fasting. In anoxia experiments normal and hypophysectomized rats receiving the preparation showed greater survival times than the normal controls.

PB 40327. EYSTER, J. A. EL, AND MEEK, WALTER J. Experimental traumatic shock and the possible involvement of the heart in the shock picture. Monthly progress report, numbers 1 and 2. August-September, 1942. 2 pp. Price: Microfilm, \$1.00; Photostat, \$1.00.

This document consists of two brief progress reports on work done under contract number OEMcmr-172. Two series of experiments concerned with the question as to the extent of cardiac damage in experimental traumatic shock, one the relation of heart size to venous pressure, the other electrocardiographic changes, are being studied. A third series concerned with maximum, minimum and mean arterial pressures and the response of the heart to a sudden transient overload is in progress. The results so far obtained indicate that the heart muscle is resistant to the deleterious effects of low circulatory volume and does not develop irreversible damage until after prolonged exposure to deficient blood flow. These experiments were made with dogs.

Medical Societies.

THE MEDICAL WOMEN'S SOCIETY OF NEW SOUTH WALES.

A MEETING of the Medical Women's Society of New South Wales was held on September 25, 1946, at the Rachel Forster Hospital for Women and Children, Redfern, Sydney, Dr. PHYLLIS ANDERSON, the President, in the chair.

Iodine and Monilia Infection of the Vagina.

DR. CLAIRE WEEKES read a paper entitled "Iodine Treatment of Monilia Infection of the Vagina" (see page 636).

DR. MURIEL MCILRATH asked whether Dr. Weekes had not found that she had to clear up an underlying infection—for example, chronic salpingitis—before she had any success with local treatment.

Dr. Weekes replied that the patients most difficult to cure were those with discharge from supravaginal reproductive organs, and that the most that could be hoped for in these cases was a temporary amelioration of signs and symptoms.

DR. ADDIE WALKER asked Dr. McIlrath whether she found that pregnant patients with monilia infection of the vagina lost their infection after parturition.

Dr. McIlrath replied that this was often so in her experience, and that it could possibly be related to the change from the acid vaginal secretion of pregnancy to the alkaline vaginal secretion of parturition.

DR. GRACE JOHNSTON referred to Dr. Phyllis Anderson's paper, "A Laboratory Study of Monilia Albicans" (THE MEDICAL JOURNAL OF AUSTRALIA, July 13, 1946), in which the bowel had been suggested as a possible source of monilia infection. Dr. Johnston wondered whether concurrent treatment with sulphaguanidine had ever been considered.

Dr. Weekes replied that such treatment had not been considered, but might be given consideration in the future.

DR. PHYLLIS ANDERSON asked Dr. Weekes if there were any signs in the vagina of the first painting with iodine when the patient presented herself for the second painting.

Dr. Weekes replied that in the patients inspected there were usually no signs of the earlier painting.

Patent Ductus Arteriosus with Subacute Bacterial Endocarditis Treated by Penicillin and Ligation.

DR. WILLA NELSON showed a female patient, aged fourteen years, who had first been examined in the out-patient department in June, 1945, complaining of tiredness, of loss of appetite and of some aching in her limbs. She had had amenorrhoea for several months. She was a pale, thin girl of average height. Examination of her heart revealed classical signs of patent ductus arteriosus, a continuous "machinery" murmur accompanied by a thrill, with maximum intensity in the pulmonary area, and a systolic murmur at the apex. The heart was enlarged. X-ray examination of the chest revealed a cardio-thoracic ratio of 1:1.6. The enlargement was mainly of the left ventricle, and the usual aortic knob was absent.

On the patient's admission to hospital she was found to have an evening temperature varying from 99° to 102° F. She had severe anaemia; a blood count showed that the erythrocytes numbered 3,020,000 per cubic millimetre, the haemoglobin value was 48% (7.0 grammes per centum) and the colour index was 0.8; the leucocytes numbered 13,400 per cubic millimetre, 75% being polymorphonuclear leucocytes. The blood yielded a pure culture of *Staphylococcus aureus*. No obvious embolic phenomena were apparent at this stage. A diagnosis of subacute bacterial endocarditis was made. Penicillin injections were commenced. During the early stages of her treatment the patient had two attacks of pain in the chest almost certainly due to pulmonary emboli. After 1,600,000 units had been given, the penicillin treatment was unfortunately suspended for some days owing to supply difficulties. The patient then suddenly developed a severe pain in the left side of the chest and became breathless; pallor, sweating and collapse were present and she appeared to be on the point of death. The temperature rose to 105° F., the respiration rate to 62 per minute and the pulse rate to 130 per minute. There was no doubt on this occasion that she had a pulmonary embolus with extensive involvement of the left lung. Dulness to percussion developed over almost the whole of the left lung, with bronchial breathing and friction rub. Penicillin injections were commenced, 40,000 units being given by intramuscular injection every three hours. The temperature

fell to normal within twenty-four hours and remained so except for an occasional rise to 99° F. The patient made steady improvement, and the signs in the chest gradually disappeared. Penicillin injections were continued until a total dosage of approximately 5,000,000 units had been given over twenty-five days. Dr. B. T. Edye was asked to examine the patient in consultation, with a view to performing the operation of ligation of the patent ductus arteriosus. He agreed to undertake the operation when her general condition further improved.

Radiographs revealed dilatation of the heart following the pulmonary embolism, compared with earlier films.

For the next few weeks the patient remained in bed and was treated with iron, extra nourishment and vitamins, and her progress watched by laboratory tests and radiographs of the chest. She remained afebrile and felt and looked well.

Operation was performed by Dr. Edye on October 4, 1945. Nitrous oxide and oxygen and cyclopropane were administered by Dr. C. Paton after premedication with morphine and "Avertin". A drip transfusion was maintained during the operation. The ductus was found to be very wide in diameter and very short (estimated length 0.25 centimetre); it was more like a window between the two vessels than a duct. The walls were thickened, presumably by the infection. Compression of the ductus abolished the loud murmur and thrill. Owing to its sessile nature, it was ligated only with considerable difficulty. Two number 8 silk ligatures were passed around the ductus. When they were tied it was difficult to obtain sufficient tension to be sure of effective closure, the tightening of the sutures causing a pull on the aorta. However, after the ligatures were tied no thrill could be felt and no murmur was audible with a sterile stethoscope.

After operation the patient made an uninterrupted recovery. A small effusion developed in the pleural cavity, but absorbed without paracentesis being necessary. She was discharged from hospital four weeks after operation. Dr. Nelson said that when the patient was examined in July, 1946, she was well, and was attending a business college. She had more energy than she had ever had before. She was able to climb the steps at Burwood and Wynyard railway stations morning and evening without breathlessness, and she attended a dance once a week and was not fatigued by dancing. However, a continuous murmur was still audible in the pulmonary area and a systolic murmur was heard in all areas; but the murmurs were not so harsh as before and no thrill was palpable. Although some blood was still escaping through the incompletely obliterated ductus, the patient's general condition and cardiac efficiency had been considerably improved by the operation. The subacute bacterial endocarditis was "cured" by a total dosage of just under 5,000,000 units of penicillin, although that amount was much smaller than the dosages at present recommended, and no relapse had occurred after twelve months. Dr. Nelson finally expressed her thanks to Dr. B. T. Edye and also to Dr. Ruth Stephen, who had looked after the patient during part of her medical treatment.

Radiological Exhibit.

DR. MARJORIE DALGARNO showed a number of skiagrams.

Multiple Myelomatosis.

The first films shown by Dr. Dalgarno were those of a female patient, aged fifty-eight years, who had first consulted her doctor on account of pain in the region of the elbow. Skiagrams revealed a pathological fracture through a bone cyst. Six weeks later further skiagrams showed that union had taken place. During the following three months the patient complained of pain in the arm around the shoulder and in the back. Skiagrams on September 15, 1945, revealed an area of rarefaction in the proximal third of the humeral shaft, involving the medulla, and with destruction of the cortex. The edges of this area were sharply defined, and in the middle third a small punched-out area of rarefaction was seen. In the lateral third of the clavicle there were a number of large, clear, "cystic" areas, and smaller areas were visible in its medial third and in the ribs and scapula. It was suggested that further films be taken of the long bones, as the condition was probably one of multiple myelomatosis. On October 13 both legs were radiologically examined. A minute punched-out area was seen in the left fibula, and one in the right fibula and right tibia. On October 17 the patient was admitted to hospital, and the "cystic" area in the humerus was curetted and bone grafting was performed for the pathological fracture; a plaster splint was applied and left for three months. On December 6 reexamination of the shoulder revealed considerable involvement of the shaft of

the humerus in its middle third. Further films of the leg revealed an increase in the number of lesions in the tibia. No evidence of Bence-Jones albuminuria was detected in the urine; but Dr. Dalgarno pointed out that this occurred in less than 50% of cases. A blood count on October 29 revealed that the erythrocytes numbered 3,500,000 per cubic millimetre, the haemoglobin value was 55% and the colour index was 8.0; the red cells were deficient in haemoglobin; the leucocytes numbered 9,000 per cubic millimetre. Further X-ray films on February 28, 1946, revealed similar lesions involving the medulla of the left clavicle, the humerus, the scapula and the ribs. In the right humerus an increase in the size of the lesions was apparent. Dr. Dalgarno said that the patient had left hospital looking extremely thin and cachectic, and died in the country in April, 1946, about twelve months after the first lesion had been discovered. No post-mortem examination was obtained, and as no pathological examination had been made of the scrapings from the humerus at operation, it seemed that in this case the final word remained with the radiologist.

Angioma of the Skull.

Dr. Dalgarno then showed X-ray films of a baby, aged two weeks, who had had twitching of the arms and legs since birth. Two convulsions had occurred on the day of birth; blood was taken from the anterior fontanelle, and this relieved the spasms. On the baby's admission to hospital the face was cyanosed. The right eye was more prominent than the left and the right pupil was larger than the left and did not react to light. A meningocele was present at the base of the nose, and bluish markings were present on the left side of the head and neck. No abnormality was detected in the circulatory system or abdomen. Skiagrams of the skull revealed the typical "tousled head" appearance of an angioma on the right side of the skull with radiating striations. There appeared to be some atelectasis in the right lung.

Naval, Military and Air Force.

APPOINTMENTS.

The undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 81, of May 8, 1947.

CITIZEN NAVAL FORCES OF THE COMMONWEALTH.

Royal Australian Naval Reserve.

His Excellency the Governor-General in Council has approved that the following appointment be terminated: Surgeon Lieutenant Kenneth Newton Speed, 30th January, 1947.

AUSTRALIAN MILITARY FORCES.

Australian Army Medical Corps.

Reserve of Officers.

The undermentioned officers are transferred to the Reserve of Officers on the dates indicated. When applicable, they cease to be seconded and relinquish any temporary rank held with effect from the date of transfer to the Reserve of Officers:

WX33485 Captain (Temporary Major) W. F. Tomlinson, 1st February, 1947, and V517889 Captain W. H. Phillips, 30th January, 1947.

No. 110 (Perth) Military Hospital.—Captains W54178 C. Georgeff and WX38710 R. L. Leedman, 6th February, 1947.

No. 115 (Heidelberg) Military Hospital.—VX95229 Captain (Temporary Major) S. E. Williams, 30th January, 1947, and VX98456 Captain D. J. Rae, 1st February, 1947.

20th Australian Camp Hospital.—VX94300 Captain K. W. Summons, 6th February, 1947.

77th Australian Camp Hospital.—QX64245 Captain T. N. Chenoweth, 5th February, 1947.

2nd/1st Australian Facio-Maxillary and Plastic Surgery Unit.—NX114066 Captain D. L. Dey, 29th January, 1947.

Inter-Service Medical Wing Demobilization Centres (Australian Military Forces Component).—NX204408 Captain J. R. Adamson, 30th January, 1947.

Captains NX207262 R. S. B. Hudson, 11th February, 1947, and NX208046 G. R. Terrey, 19th February, 1947.

101st Australian General Hospital (Australian Imperial Force).—NX204414 Captain T. H. O'Donnell, 11th February, 1947.

No. 110 (Perth) Military Hospital.—Captains NX208043 W. G. Taylor, 22nd February, 1947, and WX36171 H. S. Berinsshaw, 20th February, 1947.

No. 112 (Brisbane) Military Hospital.—NX207265 Captain W. H. M. Fraser, 12th February, 1947.

No. 113 (Concord) Military Hospital.—NX119216 Captain (Temporary Major) R. M. Dunn, 18th February, 1947, and NX203560 Captain F. P. Pigott, 11th February, 1947.

12th Australian Camp Hospital.—NX203771 Captain J. Colman, 11th February, 1947.

15th Australian Camp Hospital.—NX206858 Captain N. C. Newton, 18th February, 1947.

Inter-Service Medical Wing Demobilization Centres (Australian Military Forces Component).—NX201971 Captain B. B. Symonds, 18th February, 1947.

Reserve Citizen Military Forces.

2nd Military District.—Captain D. B. Arnott is retired, 6th February, 1947.

ROYAL AUSTRALIAN AIR FORCE.

Citizen Air Force: Medical Branch.

The appointments of the following officers are terminated on demobilization: Temporary Wing Commander J. D. Russell (261238), 13th February, 1947, Flight Lieutenant R. Collin (266787), 7th February, 1947.

The date in the approval given in Executive Council Minute No. 13 of 1947 to the termination of the appointment of Flight Lieutenant B. T. Dowd (267562) and as notified in *Commonwealth Gazette*, No. 28, of 13th February, 1947, is amended to read 7th January, 1947.

The appointments of the following officers are terminated on demobilization: Temporary Wing Commanders A. B. Anderson (291187) (part time), 6th March, 1947, J. A. Game (281216), 20th March, 1947, Flight Lieutenant J. C. Lane (263728), 17th March, 1947.

Reserve: Medical Branch.

The following ex-officers are appointed to commissions with the temporary ranks as shown: Wing Commander John Donald Russell (261238), 14th February, 1947, Squadron Leader James Murray Moyes (261802), Flight Lieutenant Charles Roe (277273), 1st March, 1947.

The following ex-officers are appointed to commissions with the temporary ranks as shown: Wing Commander Arthur Brayton Anderson (291187), 7th March, 1947, John Alward Game (281216), 21st March, 1947, Flight Lieutenant John Charles Lane (263728), 18th March, 1947.

Correspondence.

FOREIGN BODY IN THE OESOPHAGUS.

SIR: I was interested in the account of the case of "Foreign Body in the Oesophagus" shown by Dr. Raymond Hennessey to the Melbourne Paediatric Society on November 13, 1946 (*THE MEDICAL JOURNAL OF AUSTRALIA*, May 10, 1947). The reference of all symptoms to the respiratory tract can be most confusing, as is illustrated in the following case of a child whose condition was further complicated by the fact that she had had a foreign body removed from the same site in the oesophagus (in fact both foreign bodies were present at the same time).

In 1925 or 1926 (I am unable to give the exact date, as I have not got the history of this patient in my possession) T.M., aged one year and five months, was admitted to the Hospital for Sick Children, Brisbane, with a history of having swallowed a button. The X ray showed a metal trouser button at the level of the fourth thoracic vertebra (this button had four holes in it). Under general anaesthesia, I removed a piece of blue trouser material, and then, with some difficulty (owing to its impaction), I removed a metal trouser button with four holes in it.

Feeling rather pleased about things generally, it can be imagined I was somewhat astounded when the mother of the child informed me that the button I had shown her (*plus* the piece of trouser) was not the button the child had swallowed, and went on to describe a blue glass button with two holes in it.

The X ray failed to shake her in her story, and as at that stage there were no further symptoms suggestive of a foreign body anywhere and despite the fact that the mother brought in another blue glass button to show me, the child was discharged from hospital.

Shortly after, the child was referred to me again by the out-patient physician, on account of stridor, but there were no other symptoms, and as X ray did not reveal any foreign body, as there was no interference with deglutition

and as the foreign body was presumed to be too big to have gained entry into the larynx, it was assumed by me that scarring due to the forcible removal of the first button resulted in some way in a reflex which was causing the stridor.

The child was back and forwards to the hospital for months. Antero-posterior and lateral views were taken of the child, until I was afraid it would be burnt. I even discovered the child on one occasion in the laryngeal diphtheria block (this was in the days preceding immunization). Eventually the mother gave way and confessed she had seen the child swallow two buttons, one on the Tuesday and one on the Thursday of the particular week that she had brought the child to the hospital. Obviously I removed Thursday's button.

Eventually a lateral view was taken and the button at last showed quite clearly at the same level at which the first button was found. It is interesting to note that on careful examination of the original films, the faint shadow of the upper edge of the larger glass button could be made out proximal to the one with four holes. This faint shadow had suggested in my mind that it was caused by the piece of trouser, and the fact that I realized there was something unreliable about the mother's attitude did not conduce to my suspecting the presence of another button at the same site.

A bronchoscope was passed down the oesophagus under a general anaesthetic and examination of the mass of granulations was followed by a quite profuse haemorrhage. The child was returned to the ward. The matter was at this stage referred to my consultant, Dr. W. N. Robertson, and a decision was made to approach the problem through an incision in the lateral side of the neck.

Under general anaesthesia, ten months after the removal of the first button, Dr. Pat Dixon opened the oesophagus, and after some hours of endeavour, and with frequent interruptions for artificial respiration, we were able to at last remove the button. At no time were we able to see the button on account of blood and granulation tissue; the technique adopted was to pass the closed forceps beyond the button, and then withdraw to the upper edge, open the forceps, pass down with a blade on each side of the button, grip and then twist.

As can be imagined, the child's condition was not wonderful, and a glove drain with a dressing was all that was attempted.

Next morning, at approximately 8.30 a.m., the child was seen by me, standing at its cot rail crying out for food. Recovery was uneventful; at first some fluids came through the wound in the neck, but these became less, and as far as I remember, the child was discharged, cured. If anyone is sufficiently interested I can give the Christian and surname of the child.

I am often curious as to what the end result was, that is, whether there was any stricture in later life. As the operation incision was made in the length of the oesophagus, there should be no trouble there, and likewise as the edge of the button was jammed in the length of the organ, it is hoped that that would diminish the danger of stricture, although it must be remembered that the fairly violent force necessary to free the button might have had a tendency to cause circular scarring.

Is Ray Hennessy's explanation of the cause of the stridor correct, for example, pressure on and narrowing of the trachea? I always surmised, in T.M.'s case, that it was due to vagal irritation, and that the same reflex was the reason for the need for artificial respiration so many times during the final operation.

The main points to be drawn from the case of T.M. are as follows:

1. Two foreign bodies can exist at the same place and at the same time. Little time is lost and no harm is done by spending a few seconds extending the examination a little further.
2. The only symptom, stridor, was referable to the respiratory system.
3. There was no difficulty in swallowing.
4. X ray did not give conclusive evidence of the presence of the second foreign body until ten months later.
5. The mother's fear of being accused of neglect led to her hiding vital information. It is somewhat analogous to the attitude of the patient who answers in reply to the question, "What is the matter?", "That is what I came to you to find out, doctor".
6. The specialist failed to place sufficient reliance on the mother's scrappy information, owing to the fact that he did not believe her. He felt she was not telling the truth when in reality due to fear she was hiding information, and so consequently telling only part of the truth. One can imagine the terrible anxiety of the mother during that ten months. I can still remember her anger with me on more

than one occasion when I refused to treat seriously the statement that "that is not the button the child swallowed. It was a glass one" *et cetera*.

Yours, etc.,

C. E. S. JACKSON.

Orient Line House,
Eagle Street,
Brisbane.
May 12, 1947.

Post-Graduate Work.

FACILITIES FOR POST-GRADUATE STUDENTS PROCEEDING ABROAD.

At the meeting of Interstate Post-Graduate Committees, held in Adelaide on May 3, it was recommended that, in view of the difficulty experienced by post-graduates in gaining admission to British post-graduate courses, such intending visitors to England should communicate with their State post-graduate committees as early as possible prior to departure.

It is likely that a system for sponsoring post-graduate students applying for admission to courses in England will be arranged in the near future.

THE MELBOURNE PERMANENT POST-GRADUATE COMMITTEE.

COURSE IN DIAGNOSTIC RADIOLOGY.

THE Melbourne Permanent Post-Graduate Committee has arranged a course in diagnostic radiology for Part II of the Diploma of Diagnostic Radiology examination, to be conducted at various places in Melbourne.

Lectures and demonstrations will be held on Mondays and Wednesdays in July and August, 1947, and on September 1 and 3, 1947. The course will start on Wednesday, July 16. The subjects to be dealt with include: rare conditions of the urinary tract, teeth and jaws, sinuses and mastoids, non-tuberculous chest conditions, paediatrics, obstetrics, alimentary tract, pulmonary tuberculosis, bronchograms and the technique of special investigations with radio-opaque substances, bone diseases and radiology of the central nervous system.

The lecturers and demonstrators include Dr. B. Wood, Dr. T. Tyrer, Dr. J. O'Sullivan, Dr. A. Mackay, Dr. E. Crisp, Dr. Sarjeant, Dr. L. King, Dr. K. Hallam, Dr. P. Davis, Dr. Praagst and Dr. E. G. Robertson.

With one or two exceptions the lectures will take place at 4.30 o'clock p.m.

The fee for this course is £8 8s., and enrolments should be made with the Secretary of the Committee, College of Surgeons, Spring Street, C.1 (JM1547), two weeks before the commencement of the course.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

WEEK-END COURSE AT WAGGA WAGGA.

THE Post-Graduate Committee in Medicine in the University of Sydney, in conjunction with the Southern Districts Medical Association, will hold a week-end course at Wagga Wagga on Saturday and Sunday, June 7 and 8, 1947. The programme of the course, which will be held at the Wagga Wagga Base Hospital, will be as follows:

Saturday, June 7.

- 2 p.m.: Registration.
2.30 p.m.: "Treatment of Sterility", Dr. John Chesterman.
4 p.m.: "Practical Experiences in the Treatment of Varicose Veins and Ulcers", Dr. S. L. Spencer.

Sunday, June 8.

- 10 a.m.: "Neurological Problems in General Practice", Dr. T. M. Greenaway.
11.30 a.m.: "Some Aspects of the Treatment of Thyrotoxicosis", Dr. S. L. Spencer.

2 p.m.: "Hypertension in Pregnancy", Dr. John Chesterman.
3 p.m.: "Coronary Disease", Dr. T. M. Greenaway.

The fee for the course will be £1 1s. There will be no charge for members of the services. Those wishing to attend are requested to notify Dr. J. F. Ziegler, Honorary Secretary, Southern Districts Medical Association, 51, Gurwood Street, Wagga Wagga, as soon as possible.

The Royal Australasian College of Surgeons.

A POST-GRADUATE COURSE IN SURGERY.

THE Royal Australasian College of Surgeons will conduct in Melbourne a post-graduate course in surgery. It will begin on September 1, 1947, and will cover a period of approximately thirteen weeks. The course is suitable for all graduates who wish to undertake post-graduate study in surgery, and it is not designed solely for those desiring to present themselves for senior surgical qualifications.

Lectures and lecture-demonstrations will be arranged in the surgical specialties. These will be announced in detail following the receipt of entries, which close on July 31, 1947. Lectures and lecture-demonstrations in pathology will also be arranged. A detailed syllabus will be available in due course.

Obituary.

JACK MOWBRAY THOMSON.

DR. JACK MOWBRAY THOMSON, whose death was announced in this journal a few weeks ago, was the son of the late Dr. John Thomson, sometime superintendent of the Brisbane Hospital. He was born at the superintendent's residence and went to school at Brisbane Grammar School. He studied medicine at the University of Sydney and qualified in 1903. He made several trips as ship's surgeon and then went to England where he took his diploma in public health at London. He commenced practice in Brisbane in 1907. He gave honorary service to the Lady Bowen Hospital and to the Brisbane General Hospital, attaining the position of senior surgeon at the latter institution. He was medical officer to the Brisbane Tramways until they were taken over by the Municipal Council, and he was medical officer of the Queensland Railways until the time of his death. He was particularly interested in the ambulance work of the railways. This work had been started by his father, and the success of the railways ambulance teams in interstate contests was largely the result of his instruction. Those who worked with him recognized that his surgical opinion and technique were much above the average. He is survived by his wife, to whom the sympathy of a large circle of friends and of her husband's colleagues has been extended.

ROY LINDSAY PARK.

The death of Dr. Roy Park on January 23, 1947, at the early age of fifty-four years, came as a shock to a very numerous circle of friends and admirers, many of whom did not know of his illness. He was born in Charlton, Victoria, on July 30, 1892. His father, the late William Park, M.A., was an inspector of schools of the Victorian Education Department. Roy Park's school life was spent at Sale, Bendigo and Malvern before he entered Wesley College in 1906. There he became prominent as a prefect, a member of the Honour VI Form and an outstanding sportsman.

In 1912, he commenced his medical course at the University of Melbourne and graduated during the Great War in 1916. After a period as resident medical officer at the Melbourne Hospital, he enlisted and served in France as captain, Australian Army Medical Corps, in the Fifth Field Ambulance under Colonel W. L. Crowther. On his return from war service, he joined the Commonwealth Quarantine Service, but resigned after a year. He then went into private general practice in Footscray, and, later, transferred to 155, Cecil Street, South Melbourne, where he practised for twenty-five years. For many years he was an honorary surgeon at Prince Henry's Hospital, and, until his

final illness, he acted as quarantine officer for the Port of Melbourne.

Roy Park was widely known through his eminence at games; he was an interstate footballer and an international cricketer. While at Wesley College he was awarded colours in cricket and football, and was captain of the cricket eleven in 1910-1911. At the university he played league football and first grade cricket; when the university football team left the league, Park transferred to the Melbourne club. In 1913 he showed his versatility by playing both cricket and football for Victoria. After the war he played football for Footscray and was a member of that club's association premiership team in 1920. In 1920 he played for Australia against the touring Marylebone Cricket Club team.

Physically, Roy Park was a small man, but what he lacked in size he made up in gameness and skill. He has aptly been described as the idol of Victorian cricket and football crowds. He also formed one of a select band of medical cricket administrators which included Dr. Allen Robertson, Dr. Reginald Morton and the late Dr. Ramsay Maller. For a number of years Roy Park captained the South Melbourne eleven and represented that club on the Victorian Cricket Association. He was also a selector for Victoria for many years until he retired on account of ill health a year ago.

Roy Park was predeceased by his wife, who died in 1935. His brother is Dr. C. L. Park, the well-known Senior Commonwealth Medical Officer of Tasmania, who has supplied the biographical details for this obituary notice. Dr. R. L. Park, Roy Park's son, and Mrs. Ian Johnston, his daughter, have survived their parents. To these and his other relatives and close friends we offer our deepest sympathy.

Dr. W. L. Crowther writes: Any medical officer of the first Australian Imperial Force who served with a division and later found himself in command of a field ambulance would naturally look upon his new charge as second to none and his officers as of "the elect".

So it was with myself in regard to the 5th Field Ambulance from the closing stages of the Passchendaele offensive late in 1917 to the end of the war and after. Among the newly arrived section officers of this period I remember very clearly Captains A. L. McLean, F. H. Beare, H. C. Disher and R. L. Park.

McLean, who has his honoured place in Australian exploration as surgeon and bacteriologist to the 1911-1914 Australasian Antarctic Expedition, led by Sir Douglas Mawson, was even then in indifferent health, but took a full part in the work of the unit and possessed its united regard. His untimely death so soon after his return to Australia was to remove a man who could be ill spared. Beare, Disher and Park did much of the forward work with the bearers through the sustained and exacting offensive fighting of 1918. The last two mentioned came to the ambulance with the "aura" attached to first class athletes and all three showed marked aptitude for leadership in war.

Of Roy Lindsay Park his fellow officers will retain the happiest memories. His quiet humour and manner made him a very popular member of the mess, and when out of the line he took a leading part in the recreation and welfare of his men.

Although we did not meet after his return to Australia, I retain his memory as that of a courageous, loyal and efficient officer and friend.

Dr. H. Douglas Aitchison writes: It is nearly forty years since I first met Roy Park in friendly rivalry on the football field when he was showing for Wesley College the beginnings of the brilliancy he was to display in the athletic fields of both football and cricket.

It is given to few to attain preeminence in the spheres of both football and cricket, to fewer still to rise to the heights of representing Australia. To combine these feats whilst obtaining a medical degree necessitates a rare spirit, and such a one was Roy Park.

His passing leaves treasured memories in public school circles, amongst his comrades in the Field Ambulance, throughout the sporting world, and more particularly with the people of Footscray and South Melbourne, where for so many years he gave unstintingly of his best to them, displaying that kindly side of his nature which was so much a part of him. Even when confined to his bed he had to be restrained from going back to his patients. This action was typical of his unselfish devotion to his work and his genuine interest in the well-being of those under his care.

I had the privilege of visiting him frequently during the latter stages of his illness, and he displayed the same characteristics that he had shown throughout life—fortitude, kindness and consideration of others.

He was a devoted husband and father, and after the death of his wife was comforted by the love of his son and daughter, to whom the profession offers its sympathy. One

is glad to say that the honoured name of Park is still carried on by his son, Dr. Roy Park, who is practising in South Melbourne.

The most fitting tribute would be the words so often heard by him: "Well played, Roy."

Dr. D. Chisholm Worch writes: Dr. Roy Lindsay Park and I worked together in our practices for many years, and I can testify that the more intimately one knew him, the more highly one came to esteem him. That his apparently frail body concealed the heart of a lion is amply attested by his prowess in first-class cricket and football, but what was remarkable was his genuine modesty with regard to his attainments. Indeed, his innate diffidence was a handicap to him in concealing from many his very real professional ability.

During his long and painful illness I never heard him utter a word of complaint, and he would discuss his symptoms with a detachment which was truly Socratic. Even when he knew he was dying he retained the same sweet serenity which had been one of the outstanding features of his character. Truly, a very gallant gentleman.

MICHAEL JOSEPH COSTELLOE.

WE regret to announce the death of Dr. Michael Joseph Costelloe, which occurred on May 9, 1947, at Melbourne.

THE FEDERAL MEDICAL WAR RELIEF FUND.

THE following contributions to the Federal Medical War Relief Fund have been received:

New South Wales.

Western Suburbs Medical Practitioners National Emergency Service: C. W. Abernethy, R. F. Back, J. E. V. Barling, Joan C. Beatty, J. H. Blakemore, W. S. Brooks, R. K. Burnett, T. J. B. Connelley, C. W. Coombe, W. D. K. Craig, S. Davis, R. D. Davey, P. V. Dixon, P. C. Dowe, W. M. A. Fletcher, E. W. Frecker, T. W. Freeman, J. W. Farrar, G. C. Harper, P. G. Heffernan, L. P. Hiatt, A. R. Hill, H. G. Howell, D. L. Howell, J. Z. Hule, J. A. Kennedy, R. J. C. Kristensen, H. Lee, K. M. Locke, E. N. McQueen, H. T. C. MacCulloch, B. L. Menzies, A. W. Metcalf, J. Malcolm, R. J. Nixon, J. O'Brien, A. B. Owen, A. A. Pain, L. J. A. Parr, H. M. Rennie, D. M. Ross, A. R. Scott-Orr, W. C. Service, E. W. Spark, E. S. Stuckey, A. J. Traill, J. E. Traill, C. E. Vickery, R. J. Waddington, G. R. Walker, M. M. White, £322 16s. 8d.

Total: £322 16s. 8d.

Grand total: £19,148 8s. 6d.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Hughes, Cedric O'Gorman, M.B., B.S., 1943 (Univ. Sydney), c.o. the Albury Hospital, Albury, New South Wales.

Raffan, Harry Douglas, M.B., B.S., 1937 (Univ. Sydney), 135, Macquarie Street, Sydney.

Lamond, Thomas Stansfield, provisional registration, 1947 (Univ. Sydney), Kulgoa Street, Pymble.

Green, David Lewis, provisional registration, 1947 (Univ. Sydney), 43, The Crescent, Manly.

Books Received.

"The Compleat Pediatrician, Practical, Diagnostic, Therapeutic and Preventive Pediatrics: For the Use of Medical Students, Internes, General Practitioners and Pediatricians", by Wilbur C. Davison, M.A., D.Sc., M.D.; Fifth Edition; 1946. Durham, N.C.: Duke University Press. 9" x 6", pp. 280. Price: \$3.75.

"War Stress and Neurotic Illness", by Abram Kardiner, M.D., with the collaboration of Herbert Spiegel, M.D.; Second Edition; 1947. New York, London: Paul B. Hoeber, Incorporated. 8" x 5½", pp. 444. Price: \$4.50.

"A Way of Life: An Address Delivered to Yale Students", by William Oser, with a Foreword by Francis R. Packard;

1946. Sydney, London: Angus and Robertson, Limited. 6½" x 5", pp. 82. Price: 4s. 6d.

"Diseases of the Skin", by James H. Sequeira, M.D., F.R.C.P. (London), F.R.C.S. (England), John T. Ingram, M.D., F.R.C.P. (London), and Reginald T. Brain, M.D., F.R.C.P. (London); Fifth Edition; 1947. London: J. and A. Churchill, Limited. 9½" x 6", pp. 800, with many illustrations, some of them coloured. Price: 63s.

"Handbook of Correctional Psychology", edited by Robert M. Lindner, Ph.D., and Robert V. Seliger, M.D.; 1947. New York: Philosophical Library, Incorporated. 8½" x 5½", pp. 720. Price: \$10.00.

Diary for the Month.

MAY 27.—New South Wales Branch, B.M.A.: Ethics Committee.

MAY 28.—Victorian Branch, B.M.A.: Council Meeting.

MAY 29.—New South Wales Branch, B.M.A.: Branch Meeting.

MAY 29.—South Australian Branch, B.M.A.: Branch Meeting.

JUNE 3.—New South Wales Branch, B.M.A.: Organization and Science Committee.

JUNE 4.—Victorian Branch, B.M.A.: Branch Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phoenix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute; Brisbane City Council (Medical Officer of Health). Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

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